

TOWN OF MUNSTER
PLAN COMMISSION
STAFF REPORT
TUESDAY, JANUARY 10, 2017, 7:30 PM

1. **Petition PC 13-003A**— Centennial Village, c/o Jeff Ban, DVG, Inc., 11065 Broadway, Suite D, Crown Point, IN – requesting approval of Building D and site plan.

Current Zoning is PUD.

The Commission forwarded a favorable recommendation of the Draft Developmental Standards to the Council for approval with the condition the Petitioner includes the Formula Business Ordinance language. As of this meeting date, the Council has not acted on the recommendation. Any approval by the Commission will be contingent upon the Town Council's approval of the Developmental Standards.

The Petitioner has provided plans for the site. The Petitioner is proposing to increase the building by 3,000 sq. ft. from 5,000 sq. ft. to 8,000 sq. ft. This causes the available parking for the immediate site to decrease but since the development it meant to be walkable, the decrease will be made up on future phases.

There is a proposed dumpster enclosure that matches the building in material and design. The mechanicals have been hidden by raising the parapet wall of the building.

The materials proposed for the site meet the proposed Developmental Standards and meet the requests of the Plan Commission. The design and materials of the building have been greatly improved and provide more character than previous submissions.

The proposed landscape plan is much improved from the previous submission. As requested, bike racks, benches and the proposed outdoor seating has been provided on the plans. The landscaping has been expanded and diversified. Staff is very happy with the proposed landscape plan.

The photometric plan is acceptable.

Utilities have been reviewed and staff comments have been forwarded to the Petitioner.

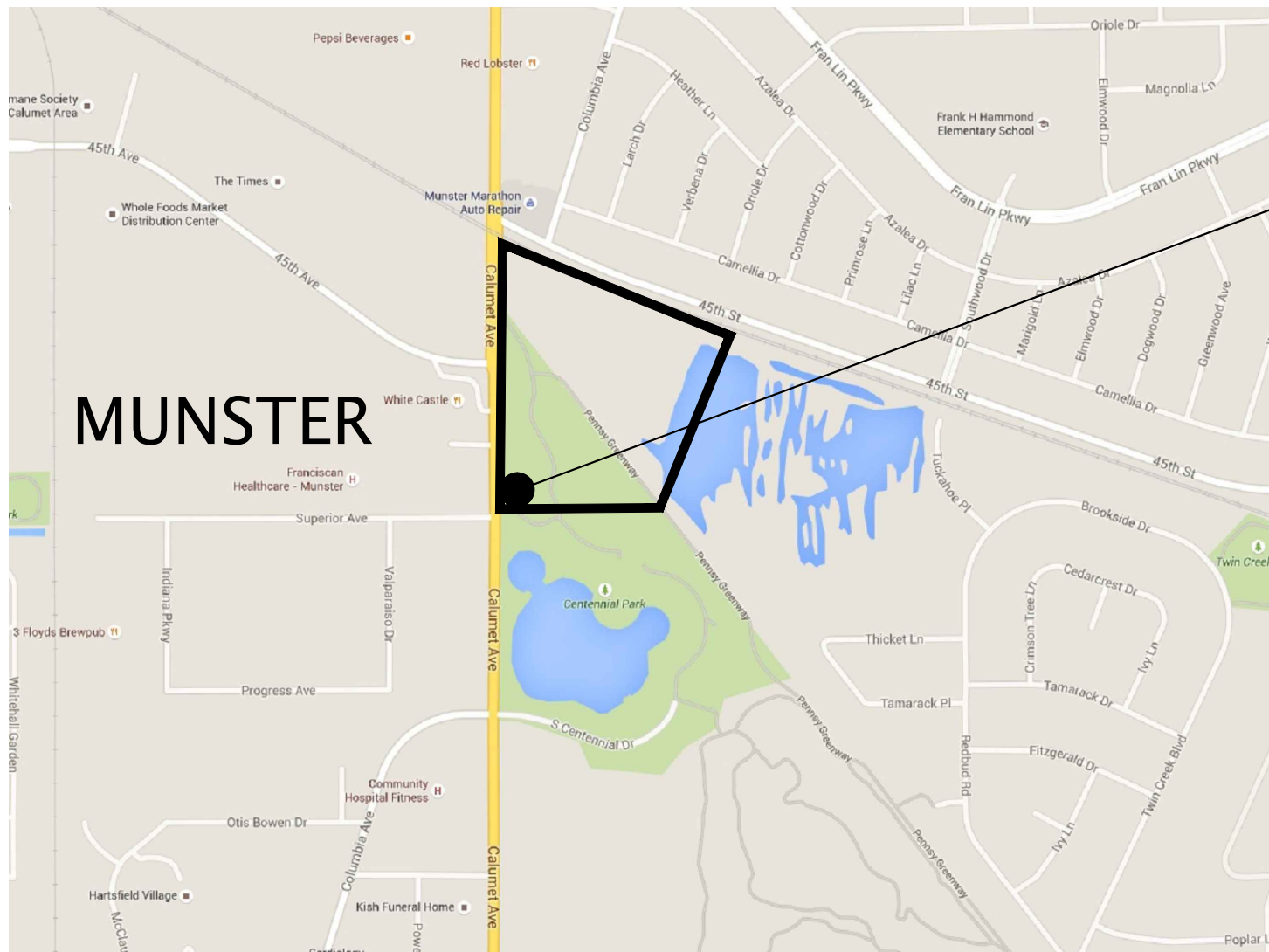
Staff recommends approval contingent upon approval of the Developmental Standards by the Town Council.

Building D Site Engineering Plans

Centennial Village - Lot 2

Munster, Indiana

ISSUE FOR REVIEW - 12-20-2016



Location Map
(No Scale)

BENCHMARKS

MAG NAIL IN BIKE PATH PAVEMENT NORTH OF PARKING LOT CURB
APPROXIMATELY 381 FT. EAST OF CALUMET AVENUE RIGHT-OF-WAY &
100 FT. SOUTH OF SOUTH LINE OF SOUTHWEST QUARTER OF
SECTION 30-36-9

ELEVATION=618.87 (NAVD88)

SCHOOL DISTRICT
SCHOOL TOWN OF MUNSTER
8616 COLUMBIA AVENUE
MUNSTER, IN 46321

WATER UTILITY
MUNSTER PUBLIC WORKS
508 FISHER STREET
MUNSTER, IN 46321
219-836-6971

ELECTRIC & GAS UTILITY
NIPSCO
801 E. 86th Ave.
Merrillville, IN 46410
800-464-7726

DEVELOPER
CENTENNIAL VILLAGE, LLC.
9615 BOULEVARD DRIVE
HIGHLAND, IN 46322

CABLE UTILITY
COMCAST
844 169TH STREET
HAMMOND, IN 46324
866-594-1234

SANITARY SEWER UTILITY
MUNSTER PUBLIC WORKS
508 FISHER STREET
MUNSTER, IN 46321
219-836-6971

TELEPHONE UTILITY
AT&T
302 S. East Street
Crown Point, IN 46307

PROJECT LOCATION

INDEX OF SHEETS

C001	Cover Sheet
C101	Existing Conditions
C102	Demolition Plan
C103	Site Plan
C104	Grading Plan
C105	Utility Plan
C106	Stormwater Pollution Prevention Plan (SWPPP)
C201-C204	Construction Details
C301-C304	SWPPP Details
E101	Lighting, Power, & Telecom Plan
L101	Landscape Plan

NOTE:

THESE PLANS HAVE BEEN DEVELOPED IN CONJUNCTION WITH SUBSURFACE GEOTECHNICAL REPORTS BY BOTH ALT WITZIG & ATC, DATED FEBRUARY 25, 2016 & JULY 8, 2015 RESPECTIVELY. THESE DOCUMENTS ARE PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT. THE LOT 1 AREA IS KNOWN TO HAVE AREAS OF UN-SUITABLE FILL MATERIAL CONTAINED WITHIN THE SITE. THE UNSUITABLE FILL MATERIAL IS KNOWN TO CONTAIN MUNICIPAL SOLID WASTE, GRAVEL AND BRICK WASTE RUBBLE. ANY SUCH UNSUITABLE MATERIAL ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER (DVG). ALL EXCAVATION AND UNDERGROUND UTILITY CONSTRUCTION SHALL BE INSTALLED ON SUITABLE TRENCH SUBGRADE OR ON OTHER MEANS TO STRUCTURALLY STABILIZE THE TRENCH AS DEFINED IN THESE PLANS. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND/OR PLANS CERTIFIED BY AN INDIANA PROFESSIONAL ENGINEER TO BE APPROVED BY DVG PRIOR TO IMPLEMENTING THE STABILIZATION METHOD.

OWNER ACKNOWLEDGEMENT OF SITE SUBSURFACE SOIL CONDITIONS

CENTENNIAL VILLAGE, LLC ACKNOWLEDGES THAT THE EXISTING SITE SUBSURFACE SOIL CONDITIONS CONTAIN A VARIETY OF UNSUITABLE FILL MATERIAL INCLUDING MUNICIPAL SOLID WASTER, GRAVEL AND BRICK RUBBLE, AND ORGANIC MATERIAL. CENTENNIAL VILLAGE, LLC UNDERSTANDS THE POTENTIAL OF THE SITE FOR LONG TERM SETTLEMENT & CONSOLIDATION DUE TO THE UNPREDICTABILITY OF THE UNSUITABLE FILL MATERIAL AND ACCEPTS THE RESPONSIBILITY FOR POTENTIAL FUTURE SETTLEMENT & CONSOLIDATION OF THE SITE. CENTENNIAL VILLAGE, LLC HOLDS HARMLESS DVG, INC FOR POTENTIAL FUTURE SETTLEMENT, CONSOLIDATION & THE RESULTING IMPACT TO SITE INFRASTRUCTURE & PAVEMENT SURFACES.

ACKNOWLEDGEMENT

CENTENNIAL VILLAGE, LLC
GENE KIMMEL, MANAGING PARTNER

LEGEND

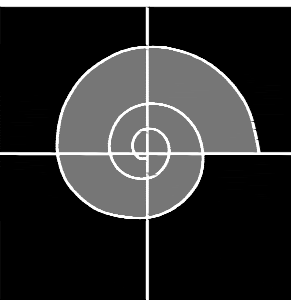
EXISTING DRAINAGE STRUCTURE	EXISTING CONTOURS
EXISTING END SECTION	PROPOSED CONTOURS
EXISTING SANITARY STRUCTURE	BOUNDARY LINES
EXISTING FIRE HYDRANT	RIGHT-OF-WAY LINES
EXISTING VALVE VAULT	PROPOSED LOT LINES
EXISTING B-BOX	UNDERLYING LOT LINE
EXISTING STREET LIGHT	EASEMENT LINES
POWER POLE	BUILDING LINES
SBC PEDESTAL	CHAINLINK FENCE
MAIL BOX	ORNAMENTAL FENCE
PROPOSED DRAINAGE STRUCTURE	OVERHEAD POWER LINES
PROPOSED END SECTION	TELEPHONE ROUTE
PROPOSED SANITARY STRUCTURE	ELECTRIC ROUTE
PROPOSED FIRE HYDRANT	GAS ROUTE
PROPOSED VALVE VAULT	EXISTING WATER
PROPOSED VALVE BOX	EXISTING STORM
PROPOSED B-BOX	EXISTING SANITARY
PROPOSED STREET LIGHT	PROPOSED WATER
DIRECTION OF FLOW	PROPOSED STORM
OVERLAND FLOOD ROUTE	PROPOSED SANITARY

STORM SEWER	CB #1 / 48" Ø R-2502 TY, D R: 100.00 I: 95.00 (W) I: 94.00 (E)	TYPE & LABEL/DIAMETER TYPE OF FRAME & COVER RIM ELEVATION PIPE INVERT AND DIRECTION PIPE INVERT AND DIRECTION
SANITARY SEWER	SAN MH A / 48" Ø R-1777 R: 100.00 I: 94.00 (W) I: 93.90 (E)	TYPE & LABEL/DIAMETER TYPE OF FRAME & COVER RIM ELEVATION PIPE INVERT AND DIRECTION PIPE INVERT AND DIRECTION
WATER	FH #1 G: 100.00	FIRE HYDRANT & NUMBER LABEL GROUND ELEVATION
	V.B. #1 W/ 6" GATE VALVE G: 100.00 TYP: 95.0	V.B. FOR VALVE BOX AND V.V. FOR VALVE IN VAULT SIZE OF GATE VALVE OR TAPPING SLEEVE GROUND ELEVATION TOP OF PIPE ELEVATION



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24 Hours a Day, Seven Days a Week:
Call 811 or 800-382-5544
www.Indiana811.org



DVG Inc.
Project Management and
Development Consulting
11065 Broadway, Suite D
Crown Point, IN 46307
(219) 662-7710 Fax (219) 662-2740

NOT FOR CONSTRUCTION

Centennial Village
L.L.C.
9615 Boulevard Drive
Highland, Indiana 46322

DVG # 14-C-1011	DATE:
REVISIONS AND NOTES:	12-20-16
ISSUE FOR REVIEW	

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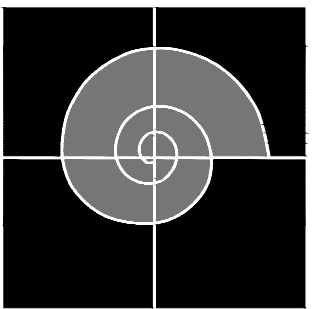
Centennial Village - Lot 2
Munster, Indiana

Cover Sheet

SCALE: NONE
DESIGN BY: DVG
DRAWN BY: JEJH
DATE: 11-29-2016

C001

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Project Management and
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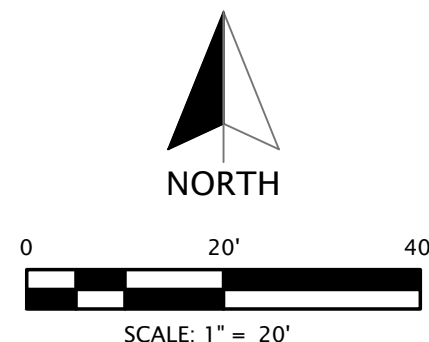
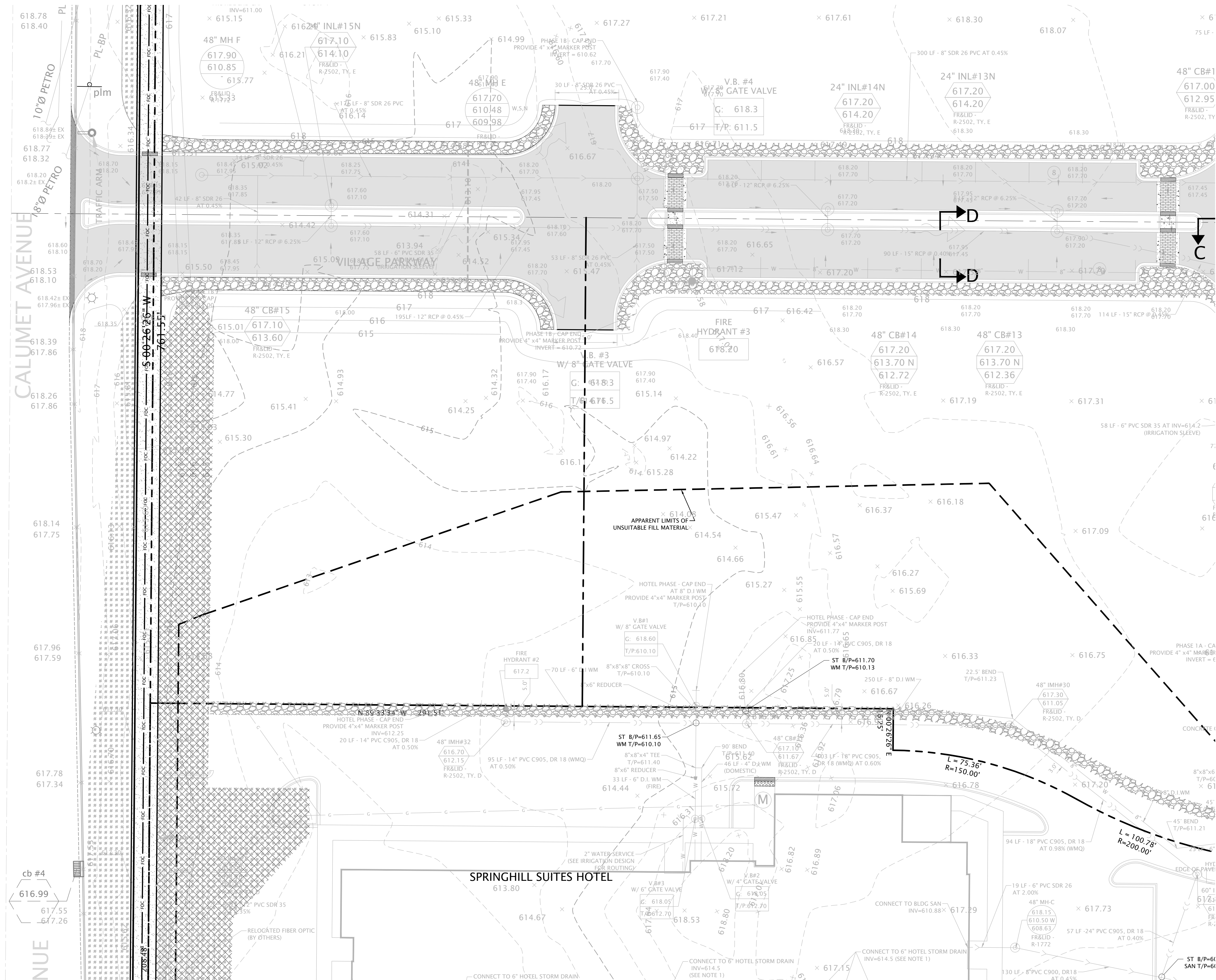
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Centennial Village - Lot 2
Munster, Indiana

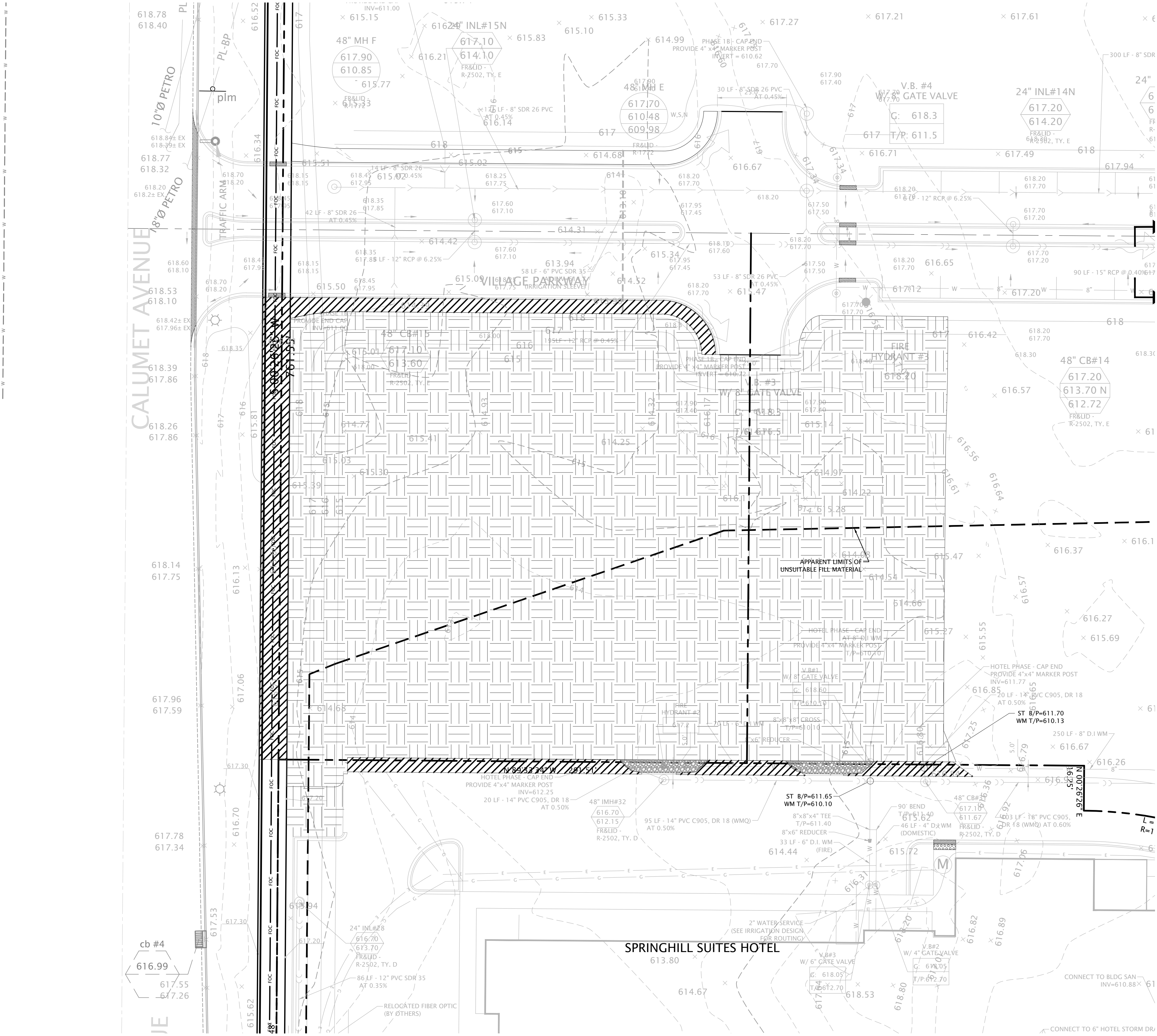
Existing Conditions

SCALE: 1"=20'
DESIGN BY: RJP
DRAWN BY: RJP
DATE: 10-18-16

C101



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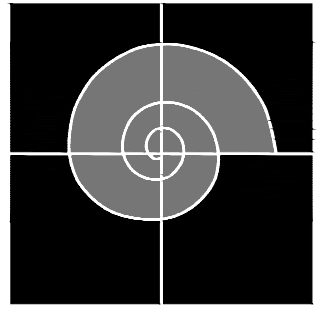
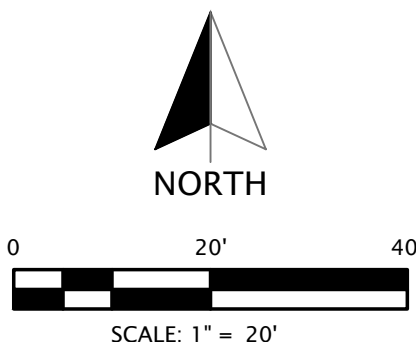


LEGEND

- REMOVE BITUMINOUS PAVEMENT AND SUB-BASE MATERIAL
- CONTRACTOR TO STRIP AND REMOVE SOD FROM ALL AREAS TO BE REGRADED AND PROPERLY DISPOSE. REMOVE SUBGRADE MATERIAL OR TOPSOIL AS NEEDED
- CONTRACTOR TO REMOVE EXISTING NO. 53 AGGREGATE AS NECESSARY TO MEET PROPOSED SITE IMPROVEMENT SECTIONS. CONTRACTOR MAY REUSE NO. 53 AGGREGATE ON-SITE.
- CONTRACTOR TO REMOVE EXISTING NO. 53 AGGREGATE TO SUBGRADE
- ITEM TO BE REMOVED
- LINEAR REMOVAL ITEM
- REMOVE SEWER

NOTES

- NO DEMOLITION SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED BY THE CONTRACTOR.
- CONTRACTOR SHALL FIELD-VERIFY SITE CONDITIONS AND INFORMATION ON DRAWINGS. PROMPTLY REPORT ANY CONCEALED CONDITIONS, MISTAKES, DISCREPANCIES OR DEVIATIONS FROM THE INFORMATION SHOWN IN THE CONTRACT DOCUMENTS. THE OWNER IS NOT RESPONSIBLE FOR UNAUTHORIZED CHANGES OR EXTRA WORK REQUIRED TO CORRECT UNREPORTED DISCREPANCIES.
- WHERE TREES OR STUMPS ARE TO BE REMOVED, GRIND OUT STUMP TO A DEPTH OF 18 INCHES.
- "REMOVAL" MEANS REMOVAL OF AN ITEM ABOVE GRADE AND REMOVAL OF ALL ELEMENTS BELOW GRADING INCLUDING, BUT NOT LIMITED TO, FOOTINGS, WIRINGS, AND PIPING THAT ARE IMMEDIATELY ADJACENT TO THE ITEM BEING REMOVED.
- REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION RELATING TO SUBSURFACE CONDITIONS.
- THE CONTRACTOR SHALL COORDINATE WITH THE TOWN OF MUNSTER FOR THE REMOVAL OF ANY TREE MARKED AS A MEMORIAL TREE WITHIN THE FORMER TOWN OF MUNSTER PARK AREA.
- THE CONTRACTOR SHALL COORDINATE WITH ANDREWS ENGINEERING, MONITORING WELL CONTRACTOR FOR THE TOWN OF MUNSTER FOR THE REMOVAL AND RELOCATION OF THE MONITORING WELL.



DVG Inc.
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Development Consulting
11065 Broadway, Suite D
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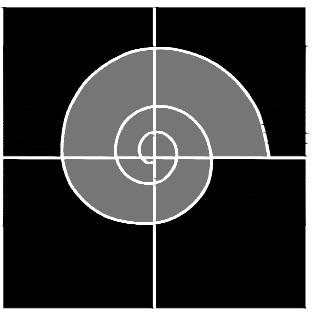
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ISSUE FOR REVIEW	12-20-16

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Centennial Village - Lot 2
Munster, Indiana
Demolition Plan

SCALE: 1"=20'	
DESIGN BY: RJP	
DRAWN BY: RJP	
DATE: 10-18-16	

C102



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**Centennial Village - Lot 2
Munster, Indiana**

Site Plan

SCALE: 1"=20'

DESIGN BY: RJP

DRAWN BY: RJP

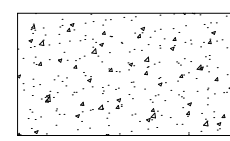
DATE: 10-18-16

C103

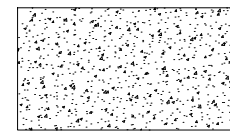
NOTES

1. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ADJACENT CENTENNIAL VILLAGE DEVELOPMENT - PHASE 1A , 1B AND SPRINGHILL SUITES HOTEL.
2. 59 SPACES PROVIDED, 3 ADA SPACES = 62 TOTAL PARKING SPACES ON BLDG D SITE.
3. DIMENSIONS SHALL BE TO FACE OF CURB, UNLESS OTHERWISE NOTED.

LEGEND



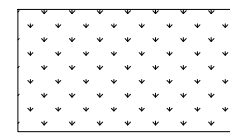
NEW CONCRETE SIDEWALK



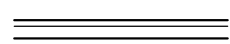
NEW CONCRETE PAD



NEW ASPHALT PAVEMENT



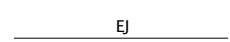
SEE L101 FOR LANDSCAPE WORK



BARRIER CURB & GUTTER



4" WIDE PAINTED WHITE SOLID LINE



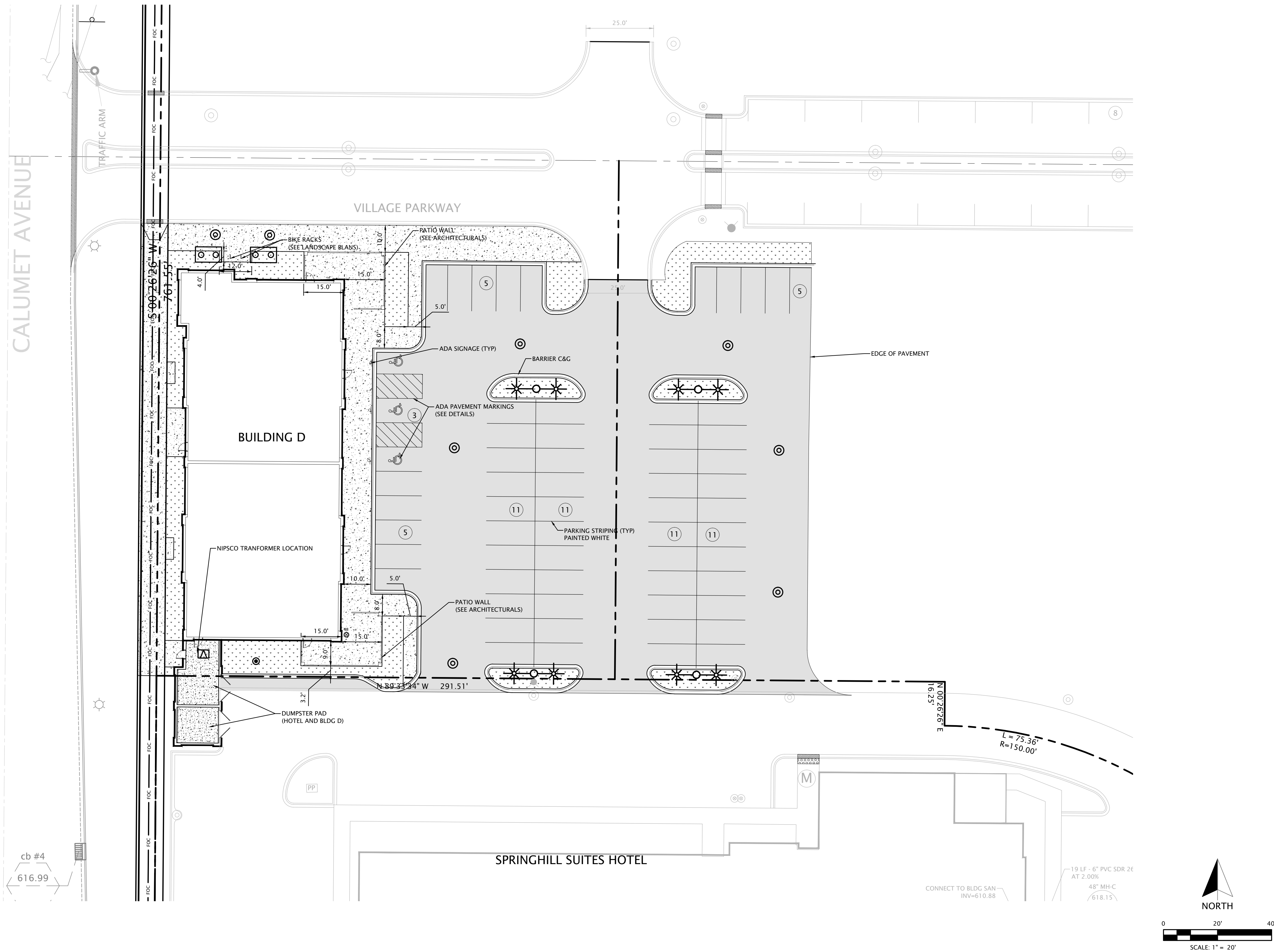
EXPANSION JOINT

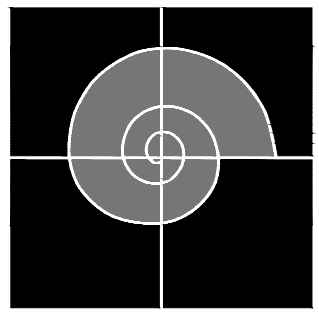


TOOLED CONSTRUCTION JOINT



DEPRESSED CURB & GUTTER





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DWG # 14-C-1011	DATE:
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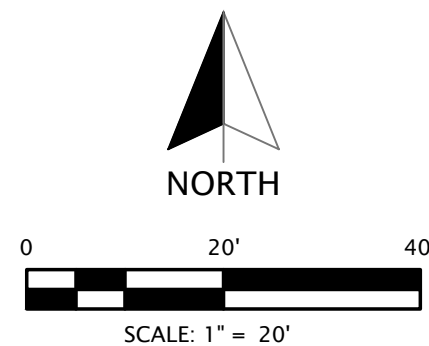
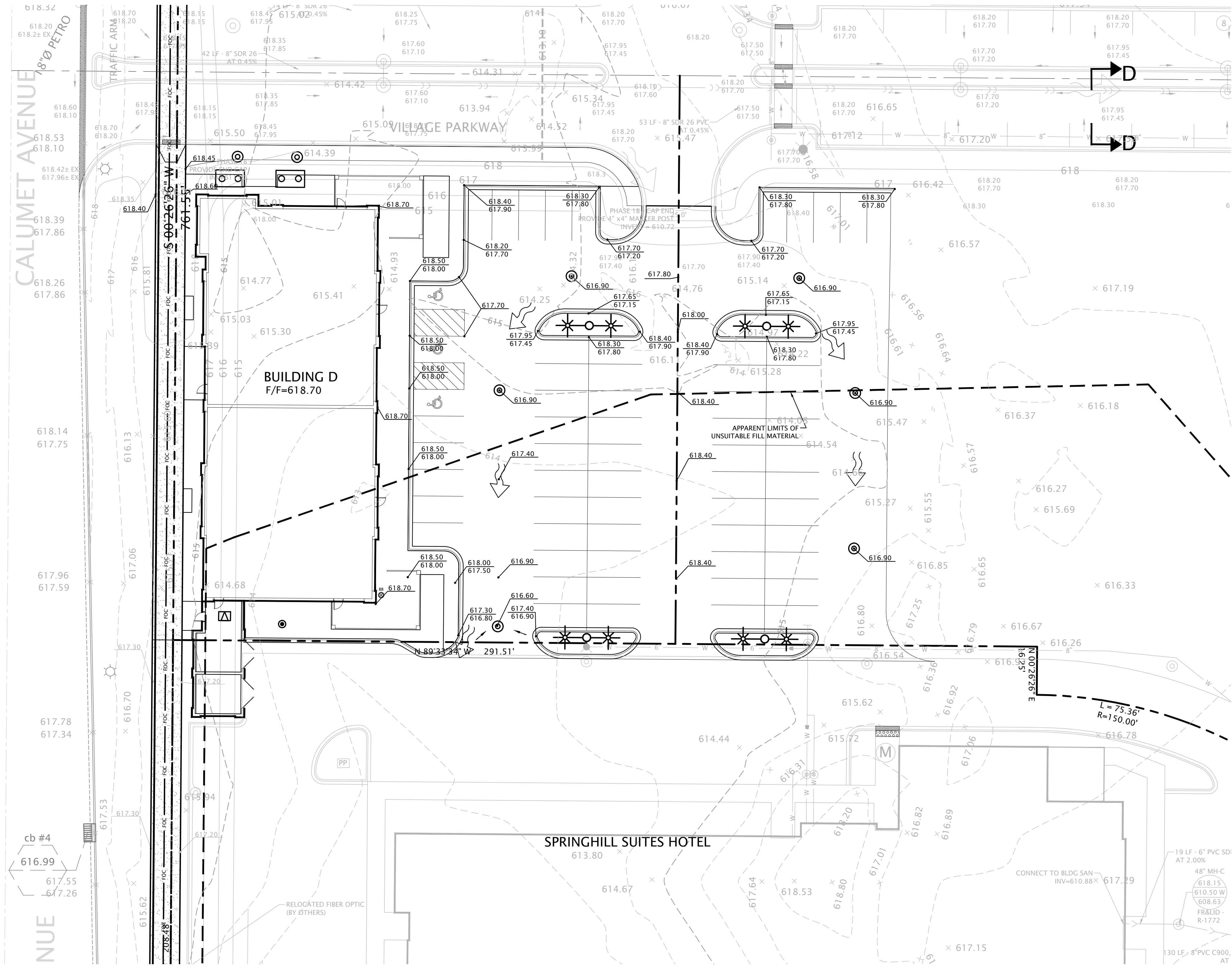
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**Centennial Village - Lot 2
Munster, Indiana**

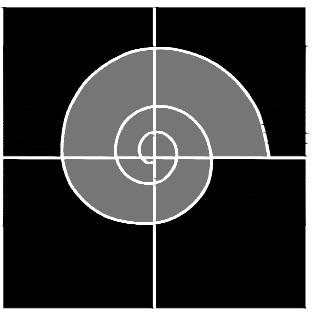
Grading Plan

SCALE: 1"=20'	
DESIGN BY: RJP	
DRAWN BY: RJP	
DATE: 10-18-16	

C104



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**Centennial Village
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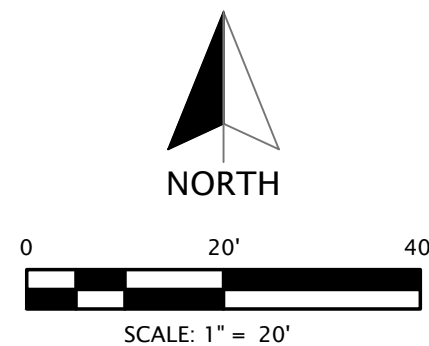
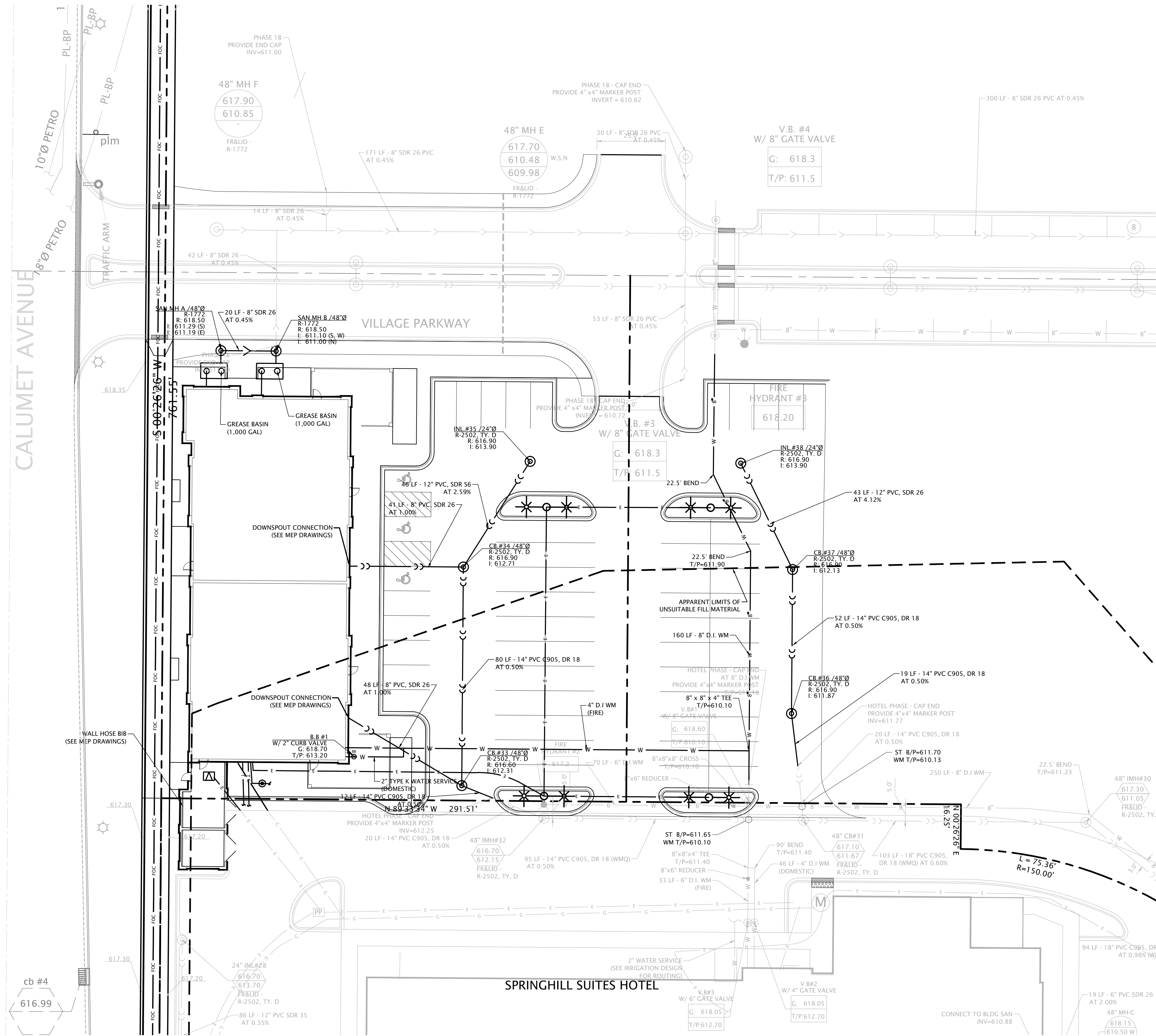
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**Centennial Village - Lot 2
Munster, Indiana**

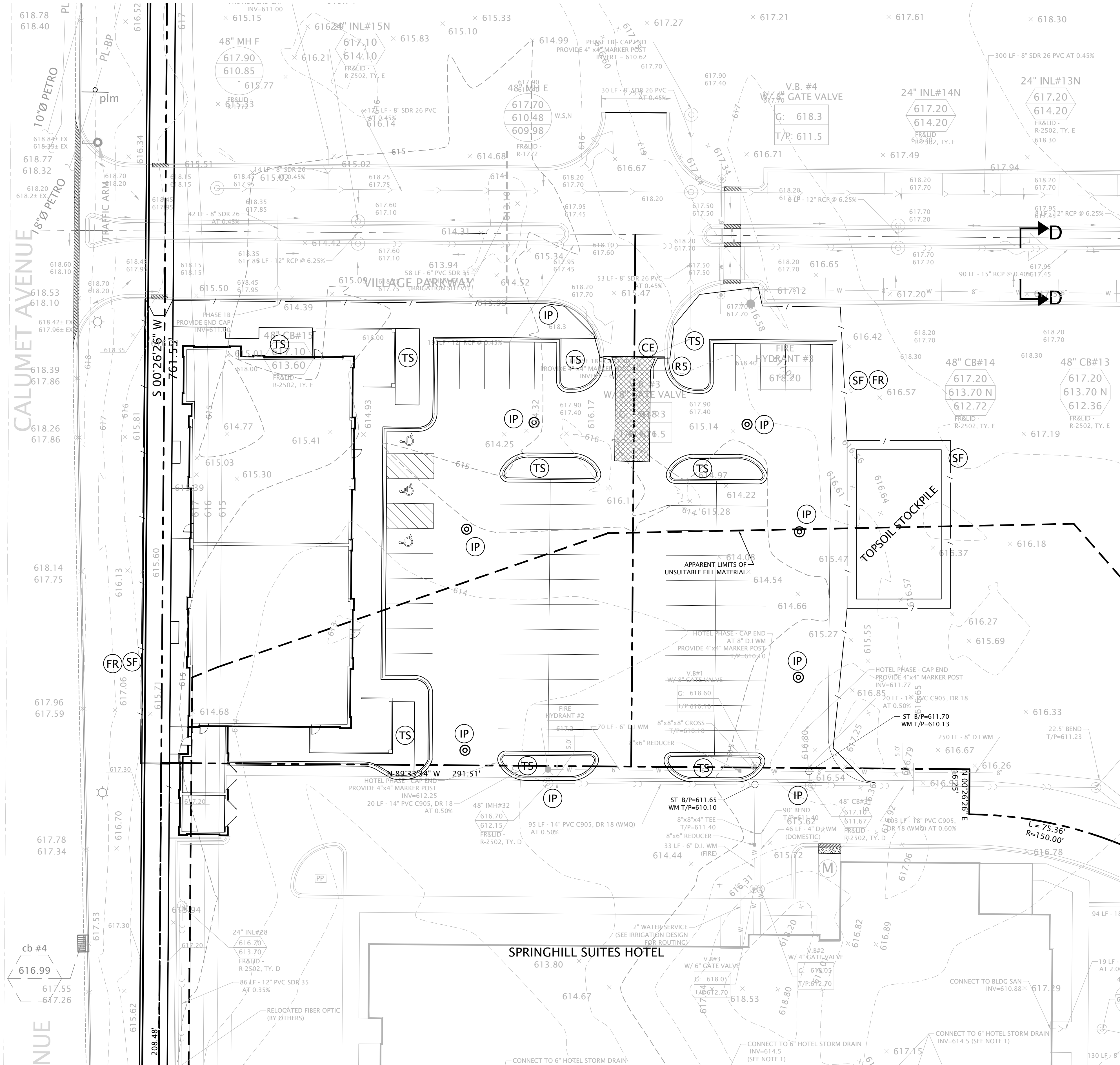
Utility Plan

SCALE: 1"=20'	
DESIGN BY: RJP	
DRAWN BY: RJP	
DATE: 10-18-16	

C105



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LEGEND

- CE TEMPORARY CONSTRUCTION ENTRANCE
- IP INLET BARRIER PROTECTION
- TS TEMPORARY/PERMANENT SEEDING
- SF FR SILT FENCE/FIBER ROLLS (MAY BE USED INTERCHANGEABLY WHERE REQUIRED)
- SW STREET SWEEPING SHALL BE PERFORMED WHENEVER TRACKING OF MUD, DIRT, CONSTRUCTION DEBRIS OCCURS ON THE PUBLIC ROAD
- R5 POSTED IDEM RULE 5 NOS, IDEM PERMIT NUMBER, AND LOCAL SWPPP PLAN APPROVAL
- EB EROSION CONTROL BLANKET
- CW CONCRETE WASHOUT
- SP STOCKPILE
- RR RIP RAP
- SD SILT DIKE (OR GEO RIDGE)

NOTES

- THE SITE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE AND/OR CLEANING TO THE STRUCTURE OR FEATURE. CORRECTIVE WORK INCURRED BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE S.W.P.P.P. ANY FINES OR PUNITIVE MEASURES INCURRED BY THE PROJECT DUE TO FAILURE TO COMPLY WITH THE S.W.P.P.P. ARE THE RESPONSIBILITY OF THE CONTRACTOR. THESE COSTS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND SHALL NOT BE CONSIDERED AN EXTRA.
- DURING THE COURSE OF CONSTRUCTION, THE LOCAL ENFORCEMENT OF THE S.W.P.P.P. MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES TO BE INSTALLED TO ADDRESS SITE-SPECIFIC ITEMS NOT ANTICIPATED BY THIS PLAN. THESE ITEMS ARE CONSIDERED AN EXTRA TO THE CONTRACT, BUT ONLY TO THE EXTENT OF INITIAL INSTALLATION. CORRECTIVE WORK AND MAINTENANCE SHALL BE CONSIDERED INCIDENTAL AND SHALL NOT BE CONSIDERED AN EXTRA.
- THE SITE CONTRACTOR SHALL INSTALL THE CONSTRUCTION ENTRANCE, POST THE RULE 5 AND PLACE PERIMETER SILT FENCING PRIOR TO COMMENCING ANY SOIL DISTURBANCE. SEE SITE PLAN FOR LOCATIONS.
- DURING SOIL-DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CREATE DIVERSION SWALES AND INSTALL DITCH CHECKS SO THAT ALL SITE RUNOFF PASSES THROUGH AN EROSION CONTROL MEASURE PRIOR TO BEING DISCHARGED OFF-SITE.
- UPON COMPLETION OF THE ROUGH GRADING, ALL AREAS AFFECTED BY CONSTRUCTION SHALL BE TEMPORARILY SEED WITHIN 14 DAYS AND EROSION CONTROL BLANKETS INSTALLED ON SIDE SLOPES AS SHOWN ON THE PLANS.
- UPON COMPLETION OF THE STORM SEWER SYSTEM, INLET PROTECTION SHALL BE INSTALLED, CHECK DAMS INSTALLED IN THE SWALES, AND TEMPORARY RIP-RAP WITH SETTLING BASINS PLACED AT THE OUTFALLS OF ALL PIPE.
- CONTRACTOR SHALL PERFORM STREET SWEEPING WHENEVER TRACKING OF MUD, DIRT, AND CONSTRUCTION DEBRIS OCCURS ON THE PUBLIC ROAD.
- CONTRACTOR SHALL COORDINATE PLACEMENT OF SILT FENCE WITH ADJACENT CENTENNIAL VILLAGE DEVELOPMENT.



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Project Management and
Development Consulting
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Crown Point, IN 46307
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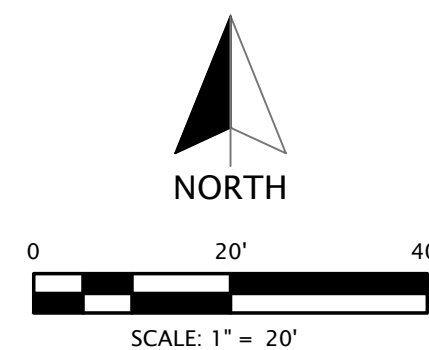
DVG # 14-C-1011	DATE:
REVISIONS AND NOTES:	ISSUE FOR REVIEW
	12-20-16

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Centennial Village - Lot 2
Munster, Indiana
Stormwater Pollution
Prevention Plan

SCALE: 1"=20'
DESIGN BY: RJP
DRAWN BY: RJP
DATE: 10-18-16

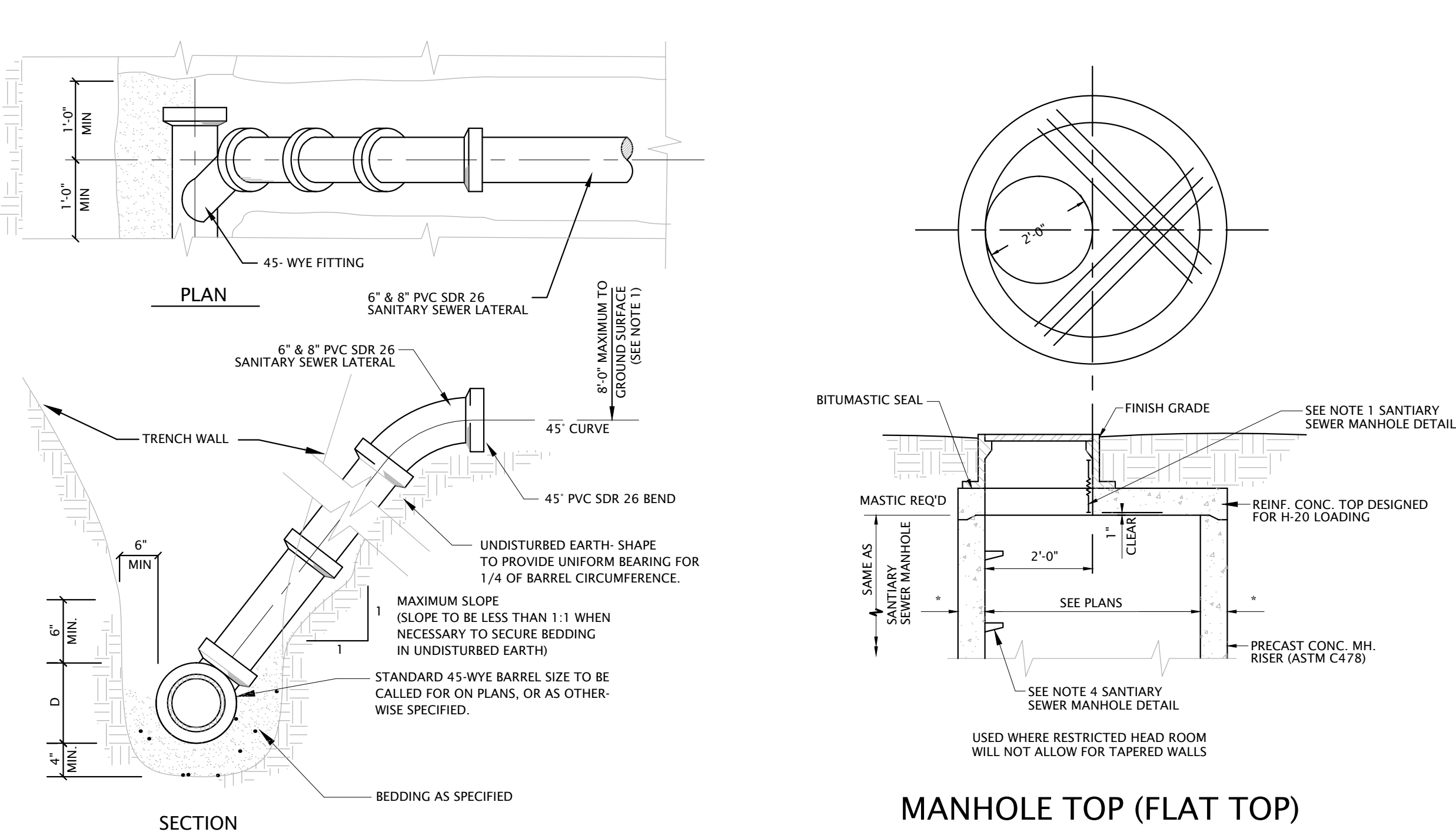
C106



NOT FOR CONSTRUCTION

SANITARY SEWER GENERAL NOTES:

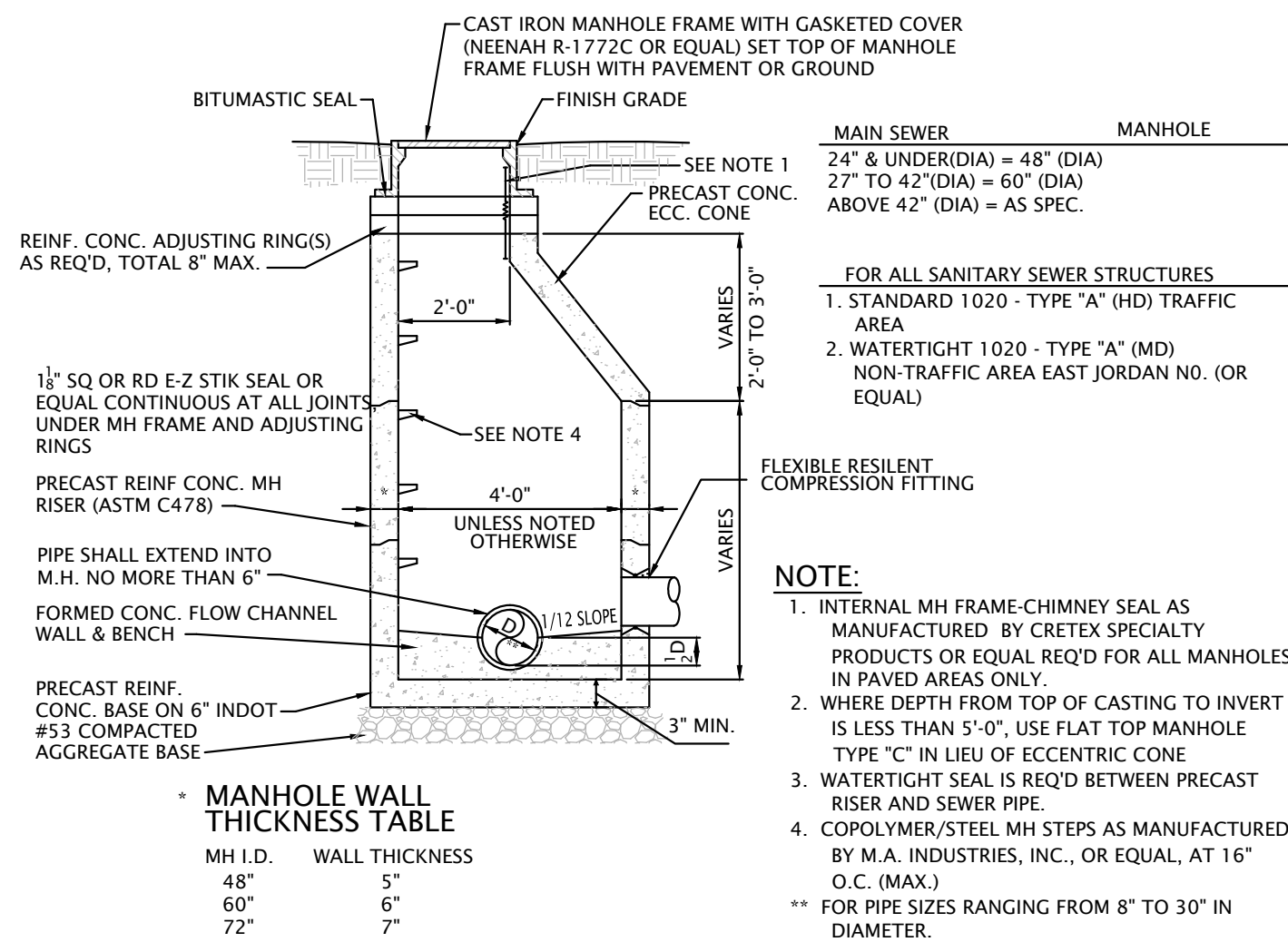
- All Floor Drains shall discharge to the sanitary sewer.
- Sanitary sewer pipe shall be PVC (SDR 26) ASTM D-3034 with push-on rubber gasket joints and shall be in accordance with ASTM C-3212, unless otherwise noted on the plans for portions to be PVC (SDR 21).
- All sanitary sewer manholes shall be air tested for leaks in accordance with ASTM C1244-93 and Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test.
- Where ductile iron pipe is used for sanitary sewer, the pipe shall be in accordance with ANSI A-21.51 and the joints in accordance with ANSI A-21.11.
- A deflection test shall be performed on each flexible pipe following the elapse of thirty (30) days after the placement of the final backfill. No pipe shall exceed a deflection of five percent (5%) or greater. The diameter of the rigid ball or mandrel used for a deflection test shall be no less than ninety-five percent (95%) of the base inside diameter of the pipe to be tested dependent on what is specified in the corresponding ASTM standard. The test shall not be performed with the aid of a mechanical pulling device.
- A leakage test shall be performed using one of the following leakage test types.
 - A hydrostatic test shall be performed with a minimum of two (2) feet of positive head. The rate of exfiltration or infiltration shall not exceed two hundred (200) gallons per inch of pipe diameter per linear mile per day.
 - An air test shall conform to ASTM F1417-92, Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air, for plastic pipe.
- All sanitary sewer shall be inspected by the Town of Munster.



- NOTES:
- RISERS TO BE CONSTRUCTED IN LIEU OF WYES WHERE SEWER DEPTH EXCEEDS 10'-0". FOR PIPE MATERIAL AND CONCRETE SEE SPECIFICATIONS.
 - ALL SANITARY SEWER SERVICE LATERALS SHALL BE PLUGGED WITH A WATERTIGHT CAP & SHALL BE LOCATED WITH 4"x4" WOOD MARKERS TO IDENTIFY THE LATERAL END

SANITARY SEWER SERVICE DETAIL

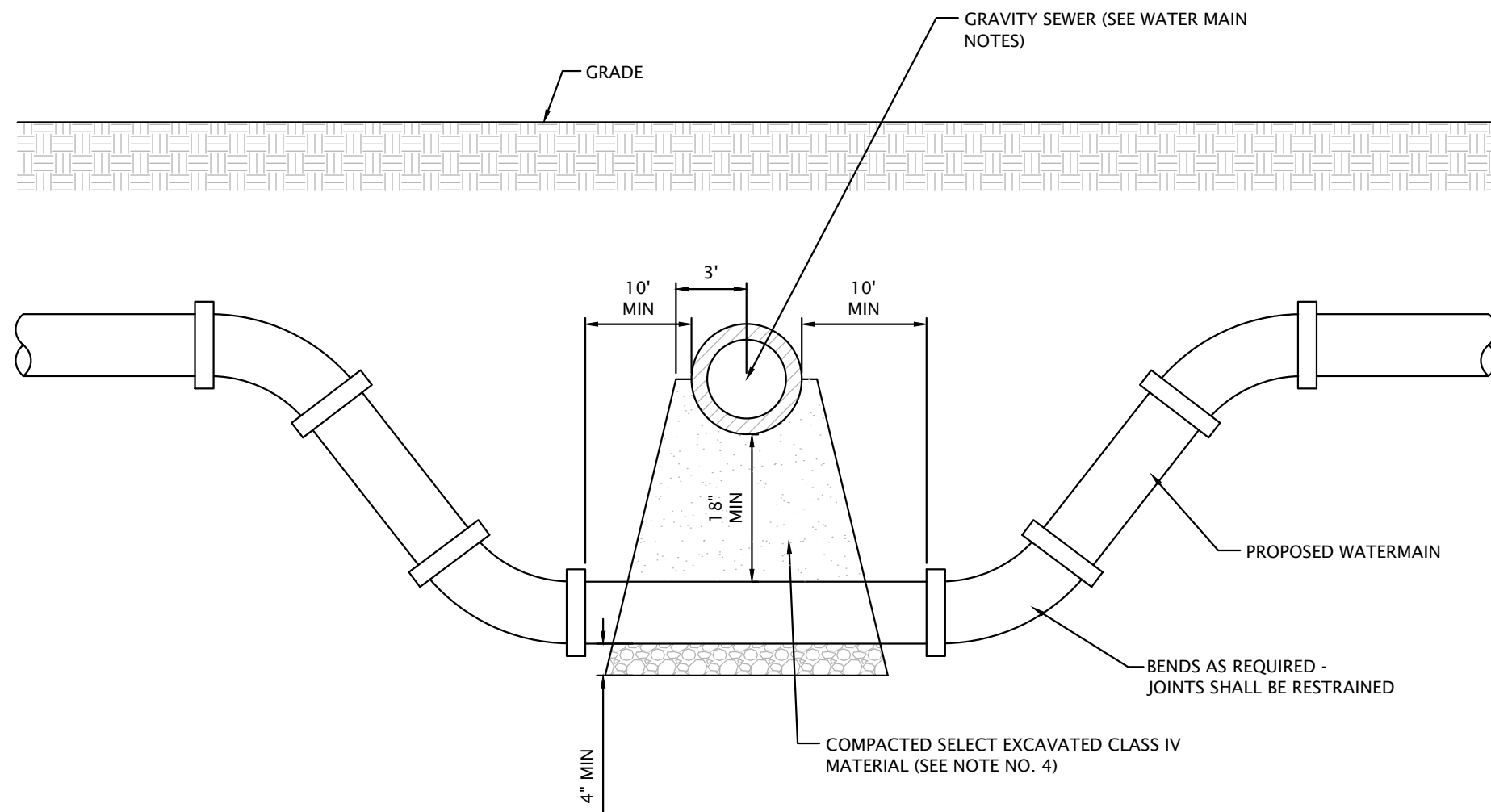
SEE PLANS FOR SERVICE SIZE
NOT INCLUDED IN WORK (CONTRACTOR TO CONNECT TO SERVICE ALREADY PROVIDED)



SANITARY SEWER MANHOLE

WATERMAIN GENERAL NOTES:

- All water mains, fittings, and valves shall be ductile iron cement lined pressure class 350 with rubber gasket push-on joints in accordance with ANSI A-21.51 & AWWA C 151. Water main joints shall conform to the requirements of AWWA C 111. Mechanical joints shall be restrained and shall use Meg-A-Lug as manufactured by EBAA Iron Sales (or equal).
- Water mains shall be laid at least 10' horizontally from any existing or proposed sanitary sewer, storm sewer, sewer manhole, drain or service connection as measured from outside edge of the water main to outside edge of the sewers or manhole. If local conditions prevent horizontal separation of 10 feet, then the SEWER SHALL BE CONSTRUCTED OF WATER MAIN QUALITY REQUIREMENTS as specified in the IAC 8-3.2 Sections 8, 9 and 17(a).
- When water mains cross any existing or proposed sanitary or storm sewers (sewers), there shall be at least 18 inches vertical separation between the outside edge of the water main and the outside edge of the sewer. This shall be the case where water mains cross above or below sewers. This crossing must be at a minimum angle of forty-five (45) degrees measured from the centerline of each. All these conditions specified shall be maintained for a minimum distance of ten (10) feet from either side of the water main. If vertical separation specified herein cannot be met, then the SEWER SHALL BE CONSTRUCTED OF WATER MAIN QUALITY REQUIREMENTS as specified in the IAC 8-3.2 Sections 8, 9 and 17(a).
- For additional separation requirements between water mains and sewers, the Contractor shall refer to the Indiana Administrative Code 327 IAC 8 and IAC 3.
- All water main shall be installed in accordance with IAC 8-3.2-17. The contractor shall provide pressure and leak testing results conforming to IAC 8-3.2-17(a).
- All water main shall be disinfected in accordance with IAC 8-3.2-18.

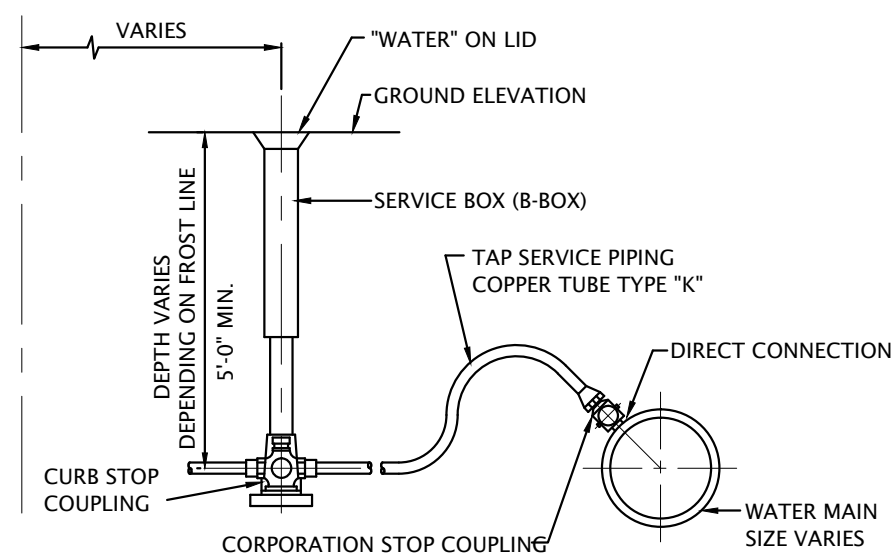


SANITARY/STORM SEWER & WATER MAIN CROSSING

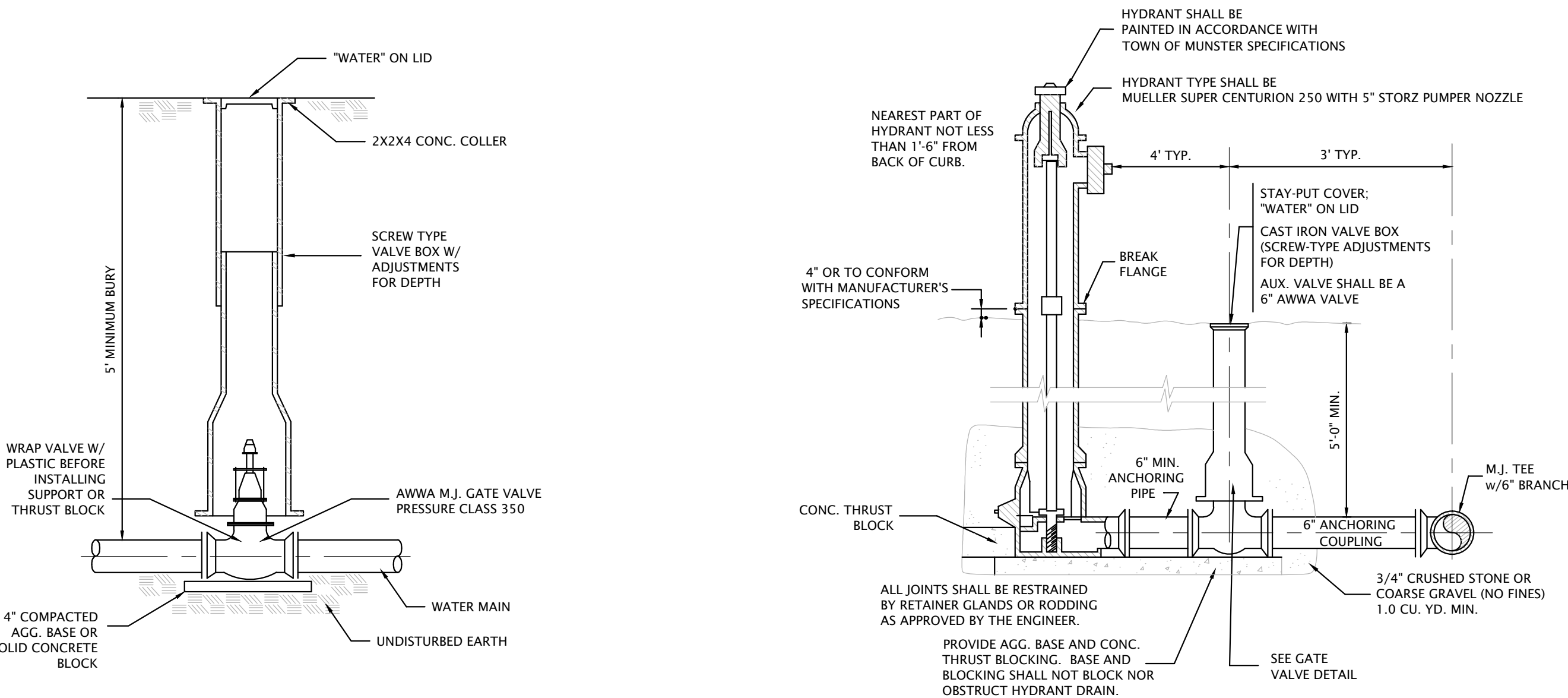
RESTRAINED PIPE LENGTH (FEET)						
PIPE SIZE (INCHES)	TEE* BRANCH	90° ELBOW	45° ELBOW	22 1/2° ELBOW	11 1/4° ELBOW	DEAD ENDS
4	0	15	6	3	2	20
6	9	22	9	4	2	28
8	18	27	11	5	3	37
10	25	33	14	7	3	44
12	33	39	16	8	4	52
14	41	44	18	9	4	60
16	48	50	21	10	5	68
18	56	55	23	11	5	75
20	63	61	25	12	6	82
24	77	71	29	14	7	96
30	97	86	36	17	8	116
36	116	100	41	20	10	135

* ONE FULL LENGTH (18') OF PIPE ON BOTH SIDES OF BRANCH TO BE RESTRAINED.
INCREASE ALL LENGTHS IN TABLE BY 75% FOR USE ON POLYETHYLENE WRAPPED DUCTILE IRON PIPE OR PVC PIPE.
TEST PRESSURE BASED ON 150 PSI.

RESTRAINED PIPE LENGTH TABLE

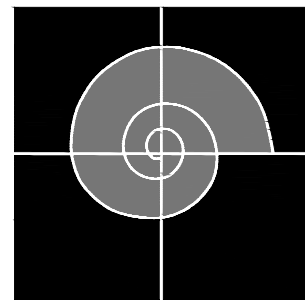


TYPICAL B-BOX & TAP SERVICE PIPING



MAIN LINE WATER VALVE,
12" OR SMALLER

FIRE HYDRANT ASSEMBLY (TYPE "A")



DVG Inc.
Project Management and
Development Consulting
11065 Broadway, Suite D
Crown Point, IN 46307
(219) 662-7710 Fax (219) 662-2740

NOT FOR CONSTRUCTION

Centennial Village
L.L.C.
9615 Boulevard Drive
Highland, Indiana 46322

DWG # 14-C-1011

REVISIONS AND NOTES:

DATE:

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Centennial Village - Lot 2
Munster, Indiana

Construction Details

SCALE: NONE

DESIGN BY: DVG

DRAWN BY: JEH

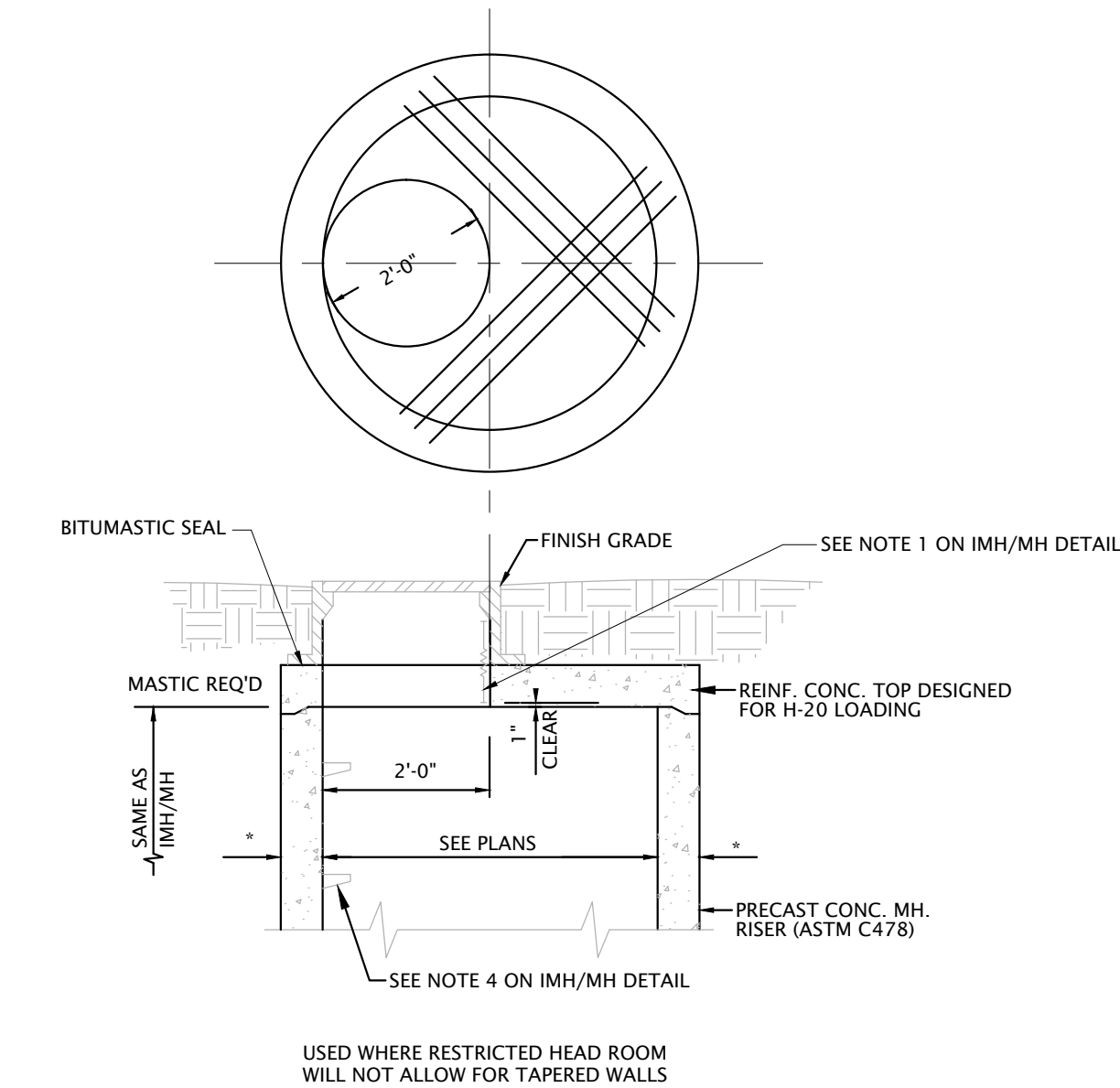
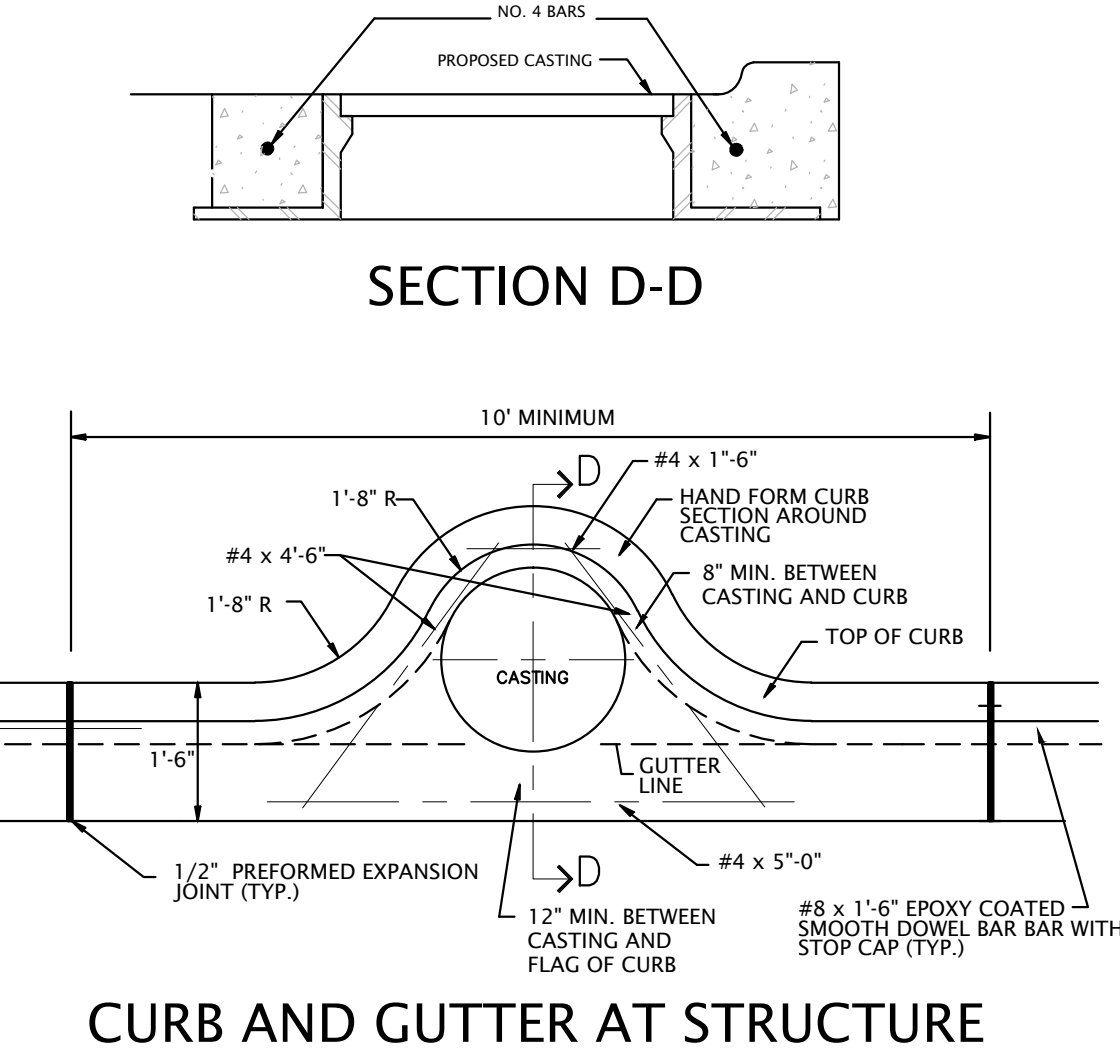
DATE: 10-18-16

C202

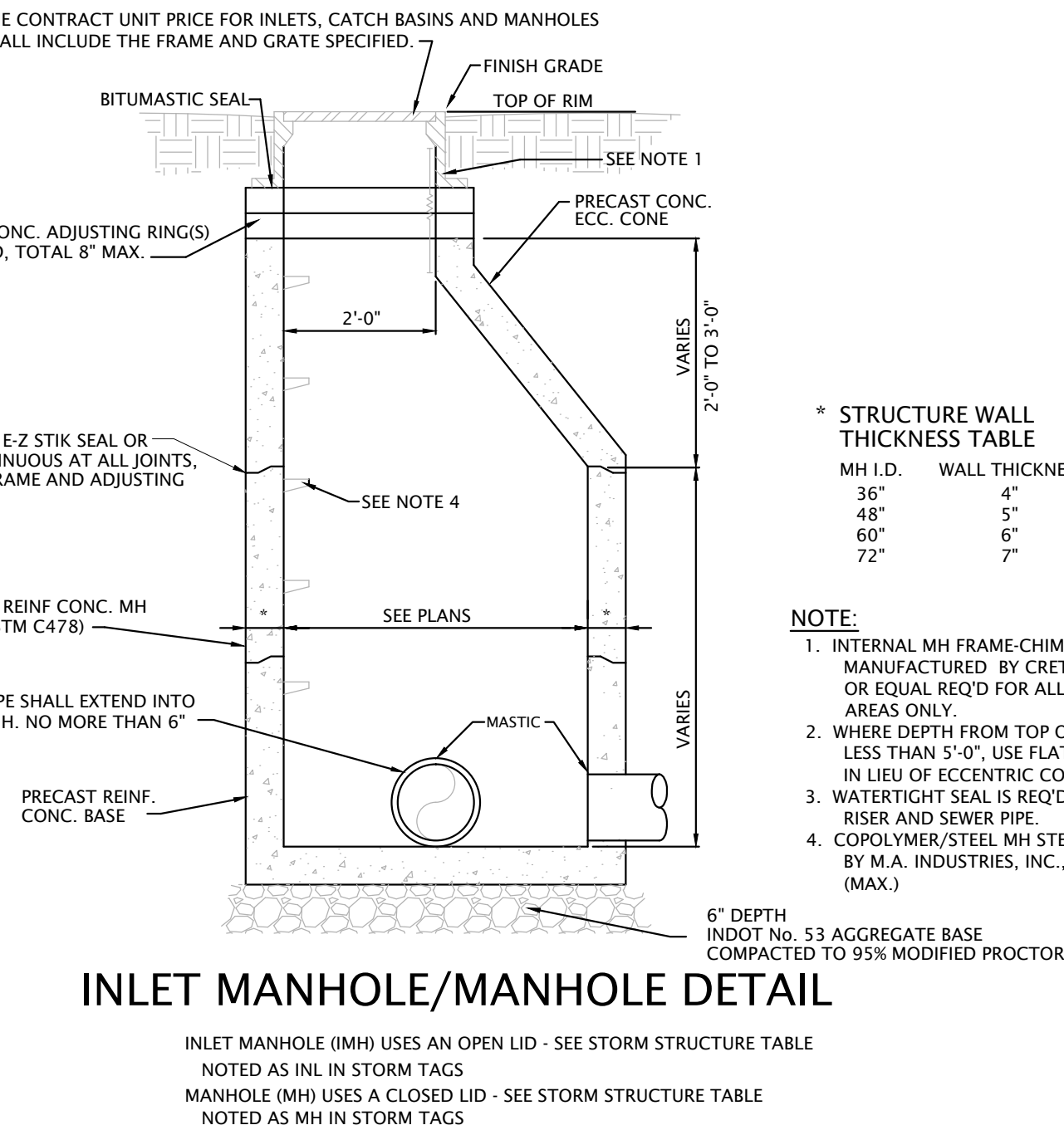
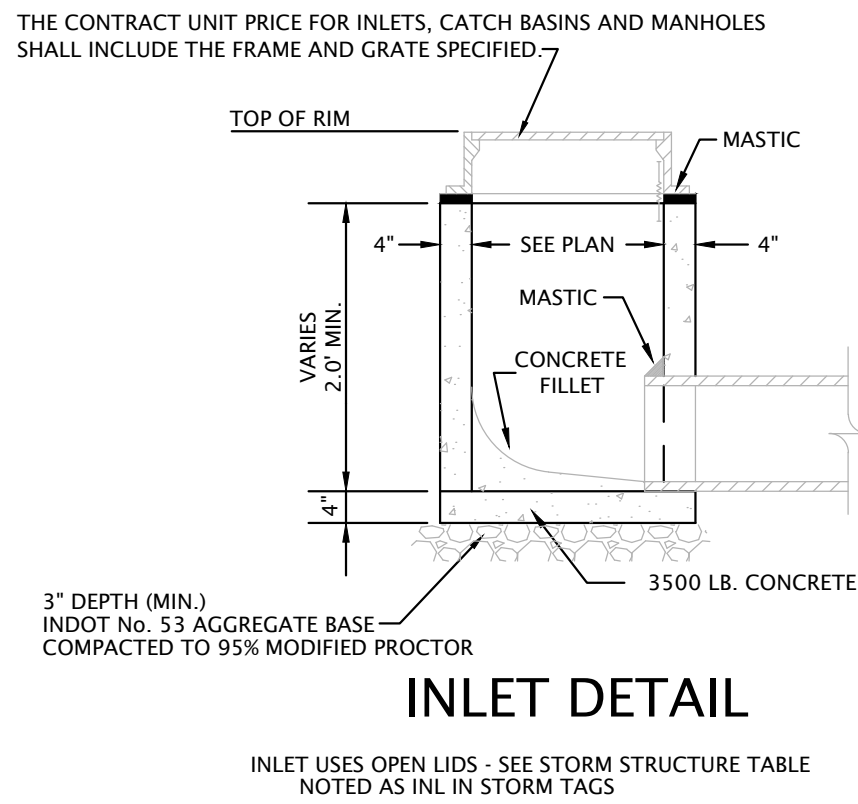
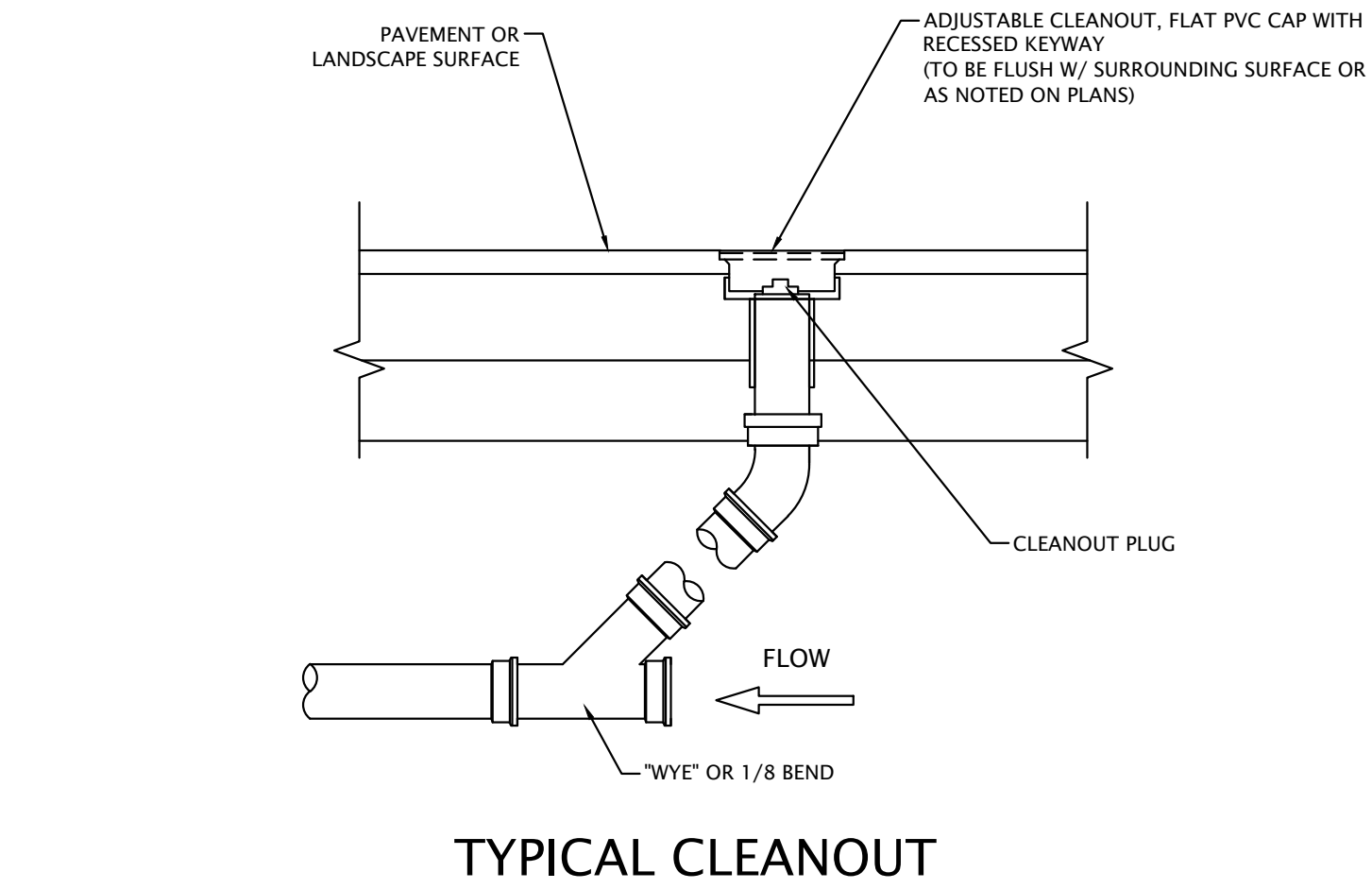
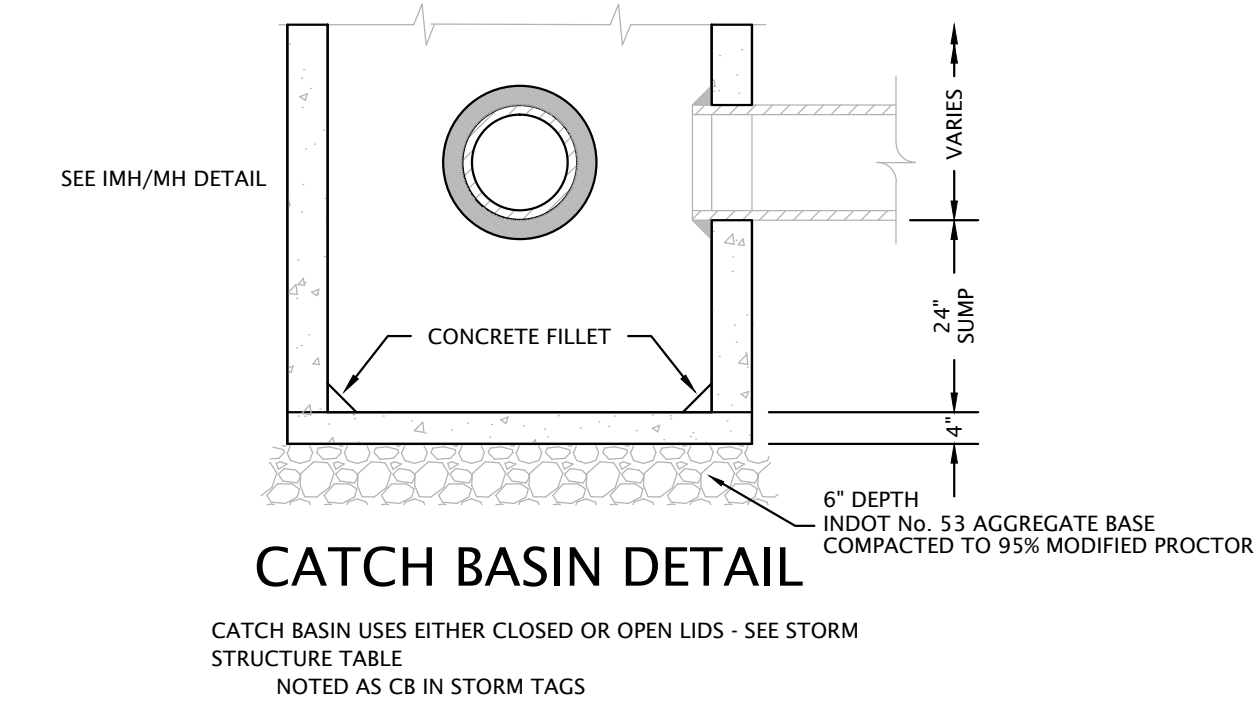
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STORM SEWER GENERAL NOTES:

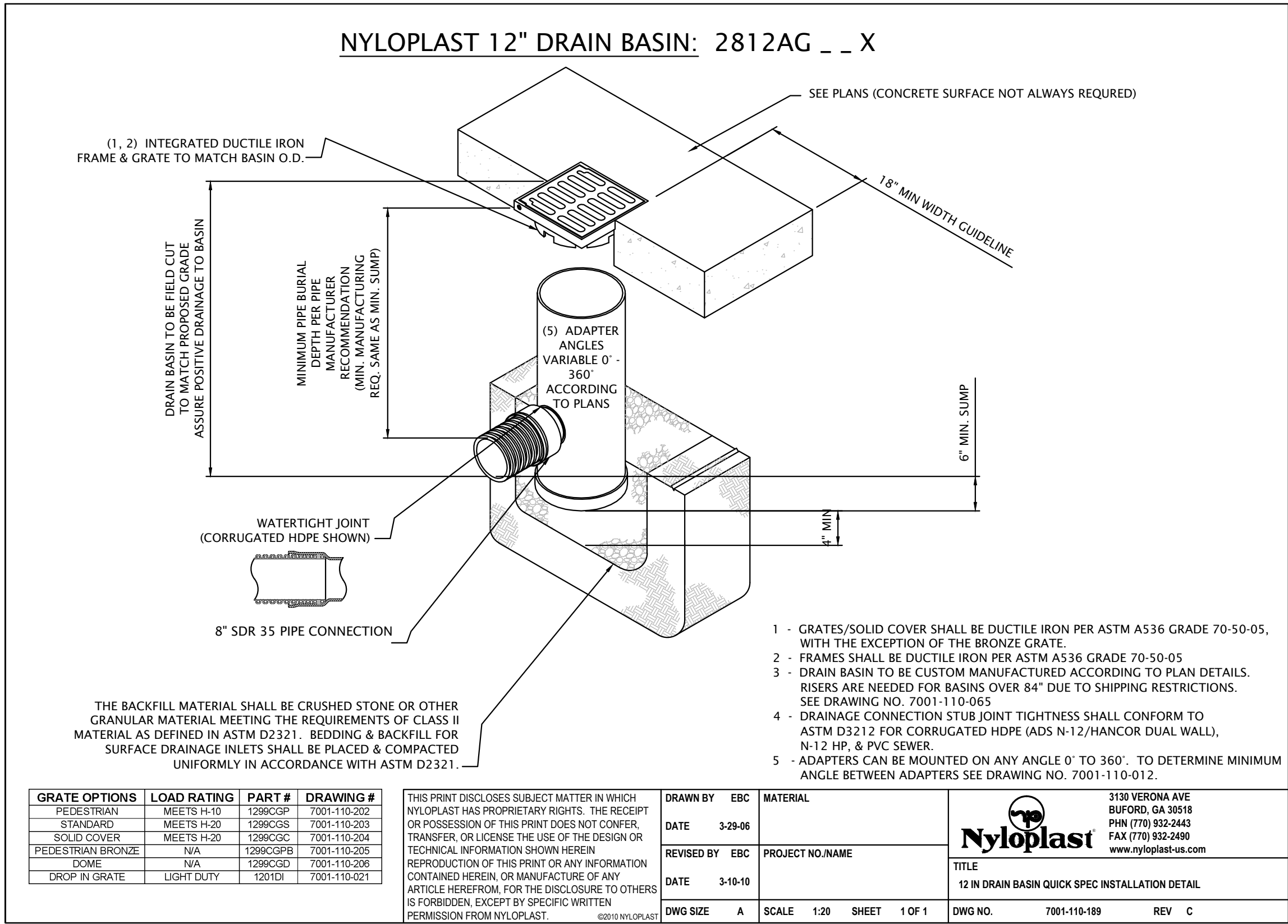
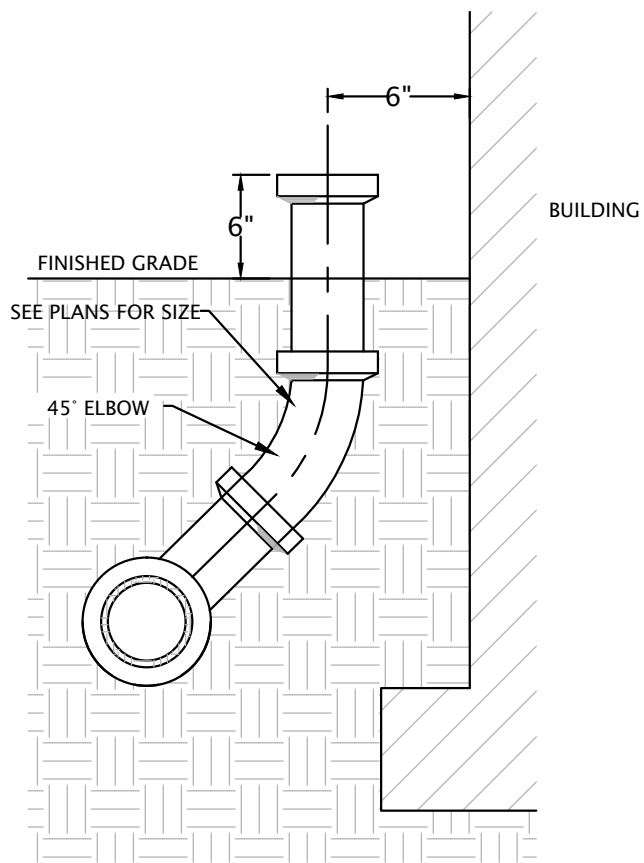
1. Footing drains, sump pump drains and outside drains shall discharge to the storm sewer where storm sewer is provided.
2. The maximum allowable rate of infiltration or exfiltration shall not exceed 100 gallons, per 24 hours per inch-diameter per mile of sewer pipe.
3. Storm sewer pipe 12" and larger shall be reinforced concrete minimum Class III, wall 8 conforming to ASTM C-76. The Contractor may use, as an alternative to reinforced concrete (Class III) storm sewer, corrugated high-density polyethylene pipe with smooth interior (ADS N-12) conforming to AASHTO M-294, if approved by the local Public Works and Engineering Departments.
4. All HDPE storm sewer pipe shall be tested with a mandrel. Maximum deflection shall not ASTM C1244-93 and Standard Test Method for Concrete Sewer Manholes by of 30 days after backfill, and should be performed without the aid of a mechanical pulling device. The deflection testing shall meet all requirements of IDEM section 327 IAC 3-6-19(a) (b) (c).



MANHOLE TOP (FLAT TOP)



DOWNSPOUT CONNECTION TYPICAL SECTION



YARD DRAIN

NOT FOR CONSTRUCTION


DVG Inc.
Project Management and
Development Consulting
11065 Broadway, Suite D
Crown Point, IN 46307
(219) 662-7710 Fax (219) 662-2740

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Centennial Village
L.L.C.
9615 Boulevard Drive
Highland, Indiana 46322

DWG # 14-C-1011	DATE:
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Centennial Village - Lot 2
Munster, Indiana
Construction Details

SCALE: NONE	
DESIGN BY: DVG	
DRAWN BY: JEJH	
DATE: 10-18-16	

C203

EROSION CONTROL MEASURES

CHEMICAL STABILIZATION

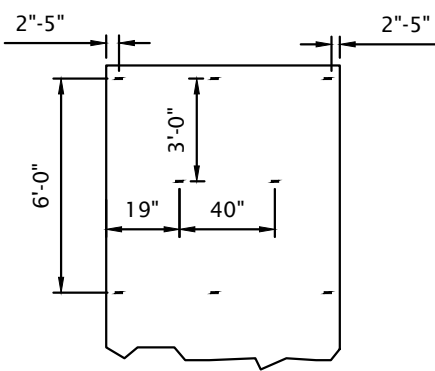
- MATERIAL: Soft pliable matting such as jute, coir or burlap, Applied Polymer Systems, "Silt Stop" dry powder (or Approved Equal)
- COVERAGE: "Silt Stop" dry powder is a soil specific material, a soil sample must be submitted to the manufacturer to determine proper application rates.
- INSTALLATION
1. Prepare the site by filling in gullies, rills, low spots.
 2. Apply Silt Stop powder dry over dry ground with a seed/fertilizer spreader
 3. Select the type and weight of erosion control blanket to fit the site conditions (e.g., slope, channel, flow velocity).
- MAINTENANCE
1. During vegetative establishment, inspect after storm events for any erosion.
 2. If any area shows erosion, repair the grade and reapply Silt Stop powder and re-lay and staple the blanket
 3. After vegetative establishment, check the treated area periodically.

GEOTEXTILES

- MATERIAL: North American Green - S 150 or DS 150 Blanket
S 150 when placement occurs in the fall, and winter durability is required
DS 150 degrades more rapidly allowing for sooner mowing of the stabilized area.

EROSION CONTROL BLANKET (SURFACE-APPLIED)

- ANCHORING: Staples as recommended by the manufacturer. For North American Green use Staple pattern "B" - see chart below.
- INSTALLATION
1. Select the type and weight of erosion control blanket to fit the site conditions (e.g., slope, channel, flow velocity).
 2. Install any practices needed to control erosion and runoff, such as temporary or permanent diversion, sediment basin or trap, silt fence, and straw bale dam.
 3. Grade the site as specified in the construction plan.
 4. Add topsoil where appropriate.
 5. Prepare the seedbed, fertilize (and lime, if needed), and seed the area immediately after grading.
 6. Follow manufacturer's directions, lay the blankets on the seeded area such that they are in continuous contact with the soil and that the upslope or upstream ones overlap the lower ones by at least 8 in.
 7. Tuck the uppermost edge of the upper blankets into a check slot (slit trench), backfill with soil, and tamp down.
 8. Anchor the blankets as specified by the manufacturer.
- MAINTENANCE
1. During vegetative establishment, inspect after storm events for any erosion below the blanket.
 2. If any area shows erosion, pull back that portion of the blanket covering it, add soil, re-seed the area, and re-lay and staple the blanket.
 3. After vegetative establishment, check the treated area periodically.



EROSION CONTROL BLANKET (CHANNEL APPLICATION)

- NOTE: Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface. Refer to general staple pattern guide for correct staple recommendations for channels.
- CRITICAL POINTS
- A. OVERLAPS AND SEAMS
 - B. PROJECTED WATER LINE
 - C. CHANNEL BOTTOM/SIDES
 - SLOPE VERTICES
1. PREPARE SOIL BEFORE INSTALLING BLANKETS. INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.
 2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH, BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.
 4. PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.
 5. FULL LENGTH EDGE OF BLANKETS AT THE TOP OF SIDE SLOPES MUST BE ANCHORED IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 6. BLANKETS ON SIDE SLOPES MUST BE OVERLAPPED 4" OVER THE CENTER OF BLANKET AND STAPLED (2" FOR C350 MATTING).
 7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.
 8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

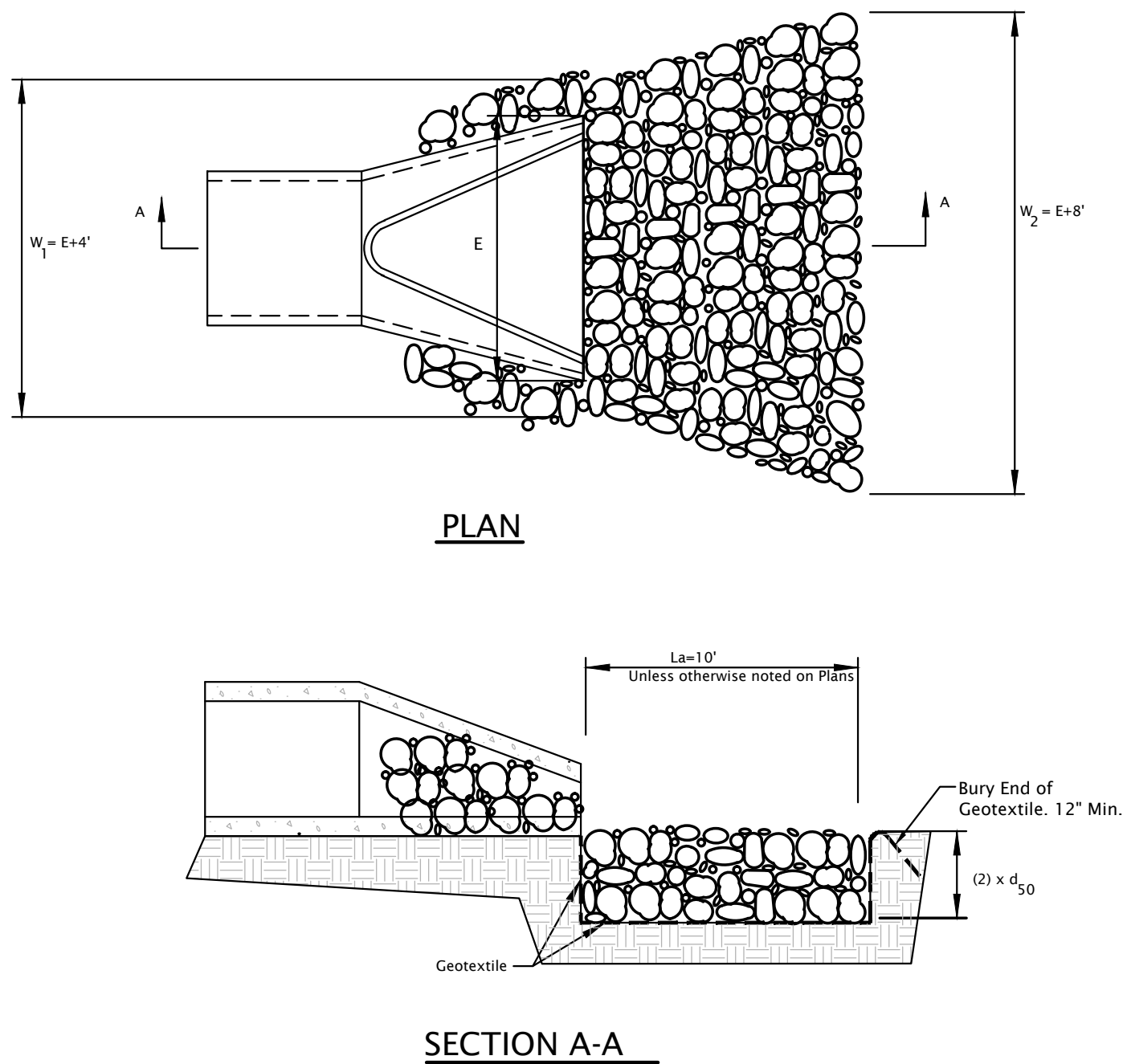
EROSION CONTROL BLANKET (SIDE SLOPE APPLICATION)

- DETAIL SOURCE: NORTH AMERICAN GREEN
- NOTE: Refer to general staple pattern guide for correct staple recommendations for channels.
1. PREPARE SOIL BEFORE INSTALLING BLANKETS. INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
 5. WHEN BLANKETS MUST BE SPICED DOWN THE SLOPE. PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.

RIP RAP AT PIPE OUTLET

- MATERIAL: Hard, angular, and weather-resistant, having a specific gravity of at least 2.5
- GRADATION: Well-graded stone, 50% (by weight larger than the specified d_{50} , however, the largest pieces should not exceed two times the specified d_{50} , and no more than 15% of the pieces (by weight) should be less than 3 in.
- FILTER: Use geotextile fabric for stabilization and filtration or sand/gravel layer placed under all permanent riprap installations.
- SLOPE: 2:1 or flatter, unless approved in the erosion and sediment control plan.
- SUBGRADE PREPARATION
1. Remove brush, trees, stumps, and other debris.
 2. Excavate only deep enough for both filter and riprap. Over-excavation increases the amount of spoil considerably.
 3. Compact any fill material to the density of the surrounding undisturbed soil.
 4. Smooth the graded foundation.

- FILTER PLACEMENT
1. If using geotextile fabric, place it on the smoothed foundation, overlap the edges at least 12 in., and secure with anchor pins spaced every 3 ft. along the overlap.
 2. If using a sand/gravel filter, spread the well-graded aggregate in a uniform layer to the required thickness (6 in. min.); if two or more layers are specified, place the layer of smaller gradation first, and avoid mixing the layers.
- RIPRAP PLACEMENT
1. Immediately after installing the filter, add the riprap to full thickness in one operation. (Do not dump through chutes or use any method that causes segregation of rock sizes or that will dislodge or damage the underlying filter material.)
 2. If fabric is damaged, remove the riprap and repair by adding another layer of fabric, overlapping the damaged area by 12 in.
 3. Place smaller rock in voids to form a dense, uniform, well-graded mass. (Selective loading at the quarry and some hand placement may be needed to ensure an even distribution of rock material.)
 4. Blend the rock surface smoothly with the surrounding area to eliminate protrusions or over-falls.
- MAINTENANCE
1. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially down-stream or down-slope.



SCOURSTOP TRANSITION MAT - Scour Protection

- MATERIAL: ScourSTOP semi-rigid, highdensity polyethylene plastic mat.
- Erosion Tech LLC
2501 SE Tones Drive, Suite 500
Ankeny, Iowa 50021
877-99-SCOUR
www.scourstop.com
- ANCHOR CONFIGURATION FOR SLOPES STEEPER THAN 5:1: TRANSITION MATS OVER A MIN. 8 OZ. GEOTEXTILE
- POSITION ANCHORS TO SECURE SCOURSTOP MATS FLUSH WITH SOIL SURFACE. MINIMIZE GAPS OR BRIDGING.
- ANCHOR REQUIREMENTS*:
FIRST ROW OF SCOURSTOP MATS
- MINIMUM OF 8 ANCHORS
SECOND ROW OF SCOURSTOP MATS
- MINIMUM OF 5 ANCHORS
- *TO ACHIEVE CONSISTENT CONTACT WITH THE SOIL, EXCEED THE MINIMUM ANCHOR REQUIREMENT AT INSTALLATION
- ATTACH MAT TO FIRM SOIL WITH ANCHOR USING FLEXIBLE STRAP AND PUSH ON ONE-WAY STOP (INSTALL UP TO 36" DEEP, IF NEEDED TO REACH FIRM SOIL)
- INSTALL TRANSITION MAT OVER TRM OR SOD. GRADE SHOULD BE SMOOTH AND UNIFORM. GRADE OUT ANY RILLS FOR CONSISTENT SOIL STRUCTURE PRIOR TO INSTALLATION
- NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.

RIP-RAP - Scour Protection

- MATERIAL: Hard, angular, and weather-resistant, having a specific gravity of at least 2.5
- GRADATION: Well-graded stone, 50% (by weight larger than the specified d_{50} , however, the largest pieces should not exceed two times the specified d_{50} , and no more than 15% of the pieces (by weight) should be less than 3 in.
- FILTER: Use geotextile fabric for stabilization and filtration or sand/gravel layer placed under all permanent riprap installations.
- SLOPE: 2:1 or flatter, unless approved in the erosion and sediment control plan.
- MINIMUM THICKNESS: Two times the specified d_{50} stone diameter.
- SUBGRADE PREPARATION
1. Remove brush, trees, stumps, and other debris.
 2. Excavate only deep enough for both filter and riprap. Over-excavation increases the amount of spoil considerably.
 3. Compact any fill material to the density of the surrounding undisturbed soil.

- Keyway at toe of slope
- Smooth foundation under filter
- Filter fabric
- Keyway at toe of slope
- 1.5T (min.)
- T (min.)
- 2:1 (max.)
4. Cut keyway in stable material at the base of the slope to reinforce the toe. Keyway depth should be 1 1/2 times the design thickness of the riprap and should extend a horizontal distance equal to the design thickness.
5. Smooth the graded foundation.
- FILTER PLACEMENT
1. If using geotextile fabric, place it on the smoothed foundation, overlap the edges at least 12 in., and secure with anchor pins spaced every 3 ft. along the overlap.
 2. If using a sand/gravel filter, spread the well-graded aggregate in a uniform layer to the required thickness (6 in. min.); if two or more layers are specified, place the layer of smaller gradation first, and avoid mixing the layers.
- RIPRAP PLACEMENT
1. Immediately after installing the filter, add the riprap to full thickness in one operation. (Do not dump through chutes or use any method that causes segregation of rock sizes or that will dislodge or damage the underlying filter material.)
 2. If fabric is damaged, remove the riprap and repair by adding another layer of fabric, overlapping the damaged area by 12 in.
 3. Place smaller rock in voids to form a dense, uniform, well-graded mass. (Selective loading at the quarry and some hand placement may be needed to ensure an even distribution of rock material.)
 4. Blend the rock surface smoothly with the surrounding area to eliminate protrusions or over-falls.
- MAINTENANCE
1. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially down-stream or down-slope.

NOT FOR CONSTRUCTION

DVG Inc.
Project Management and Development Consulting
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Crown Point, IN 46307
(219) 662-7710 Fax (219) 662-2740

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L.L.C.
9615 Boulevard Drive
Highland, Indiana 46322

DWG # 14-C-1011	
REVISIONS AND NOTES:	DATE:

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Centennial Village - Lot 2
Munster, Indiana
Storm Water Pollution Prevention Plan Details

SCALE: NONE	
DESIGN BY: DVG	
DRAWN BY: JEH	
DATE: 10-18-16	

C302

EROSION CONTROL MEASURES (continued)

MULCHING

MATERIAL:	Straw, hay, wood fiber, cellulose, or excelsior, or erosion control blankets or turf reinforcement mats, as specified in the erosion and sediment control plan.
COVERAGE:	At least 75% of the soil surface.
ANCHORING:	Required for straw or hay mulch, and sometimes excelsior to prevent displacement by wind and/or water.

MATERIAL	RATE	COMMENTS
Straw or hay	1 1/2 to 2 tons/acre	Should be dry, unchopped, free of undesirable seeds. Spread by hand or anchored. Must be crimped or anchored.
Wood fiber or cellulose	1 ton/acre	Apply with a hydromulcher and use with tacking agent.
Long fiber wood (excelsior)	1/2 to 3/4 ton/acre	Anchor in areas subject to wind.

INSTALLATION	
1. Apply mulch at the recommended rate.	
2. Spread uniformly by hand, hay fork, mulch blower, or hydromulcher. After spreading, no more than 25% of the ground surface should be visible.	
3. If straw or hay is used, anchor it immediately in one of the following ways.	
ACNHORING METHOD	HOW TO APPLY
Mulch anchoring tool, or Farm disk (dull, serrated and set straight)	Crimp or punch the straw or hay into the soil 2-4 in. operate machinery on the contour of the slope.
Cleating with dozer tracks	Operate dozer up and down slope, not across or else the tracks will form rills.
Wood hydromulch fibers	Apply 1-2 tons/acre using a hydromulcher at a rate of 750 lbs/acre with a tacking agent (or according to contractor specifications). Do not use in areas of concentrated flow.
Asphalt emulsion	Emulsified asphalt should conform to the requirements of ASTM Spec. #977. Apply with suitable equipment at a rate of 0.05 gal/sy. Do not use in areas of concentrated flow.
Synthetic tackifier, binder or soil stabilizer	Apply according to manufacturer's recommendations.
Biodegradable netting (polypropylene or similar material)*	Apply over mulch and staple with 6-8 in. wire staples. Follow manufacturer's recommendations for installation. Best suited to slope application.

MATERIAL	CRIMP OR PUNCH THE STRAW OR HAY INTO THE SOIL 2-4 IN. OPERATE MACHINERY ON THE CONTOUR OF THE SLOPE.
WOOD HYDROMULCH FIBERS	APPLY 1-2 TONS/ACRE USING A HYDROMULCHER AT A RATE OF 750 LBS/ACRE WITH A TACKING AGENT (OR ACCORDING TO CONTRACTOR SPECIFICATIONS). DO NOT USE IN AREAS OF CONCENTRATED FLOW.
ASPHALT EMULSION	EMULSIFIED ASPHALT SHOULD CONFORM TO THE REQUIREMENTS OF ASTM SPEC. #977. APPLY WITH SUITABLE EQUIPMENT AT A RATE OF 0.05 GAL/SY. DO NOT USE IN AREAS OF CONCENTRATED FLOW.
SYNTHETIC TACKIFIER, BINDER OR SOIL STABILIZER	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
BIODEGRADABLE NETTING (POLYPROPYLENE OR SIMILAR MATERIAL)*	APPLY OVER MULCH AND STAPLE WITH 6-8 IN. WIRE STAPLES. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION. BEST SUITED TO SLOPE APPLICATION.

INSTALLATION	
1. Apply mulch at the recommended rate.	
2. Spread uniformly by hand, hay fork, mulch blower, or hydromulcher. After spreading, no more than 25% of the ground surface should be visible.	
3. If straw or hay is used, anchor it immediately in one of the following ways.	
ACNHORING METHOD	HOW TO APPLY
Mulch anchoring tool, or Farm disk (dull, serrated and set straight)	Crimp or punch the straw or hay into the soil 2-4 in. operate machinery on the contour of the slope.
Cleating with dozer tracks	Operate dozer up and down slope, not across or else the tracks will form rills.
Wood hydromulch fibers	Apply 1-2 tons/acre using a hydromulcher at a rate of 750 lbs/acre with a tacking agent (or according to contractor specifications). Do not use in areas of concentrated flow.
Asphalt emulsion	Emulsified asphalt should conform to the requirements of ASTM Spec. #977. Apply with suitable equipment at a rate of 0.05 gal/sy. Do not use in areas of concentrated flow.
Synthetic tackifier, binder or soil stabilizer	Apply according to manufacturer's recommendations.
Biodegradable netting (polypropylene or similar material)*	Apply over mulch and staple with 6-8 in. wire staples. Follow manufacturer's recommendations for installation. Best suited to slope application.

* Install the netting immediately after applying the mulch. In areas of concentrated water flow, lay it parallel to the direction of flow; on other slopes, lay it either parallel or perpendicular to direction of flow. Edges of adjacent netting strips should overlap 4-6 in., with the strip on the upgrade side of any lateral water flow on top. Installation details are site specific, so follow manufacturer's directions.

MAINTENANCE	
1. Inspect after storm events to check for movement of mulch or for erosion.	
2. If washout, breakage, or erosion is present, repair the surface, then re-seed, re-mulch and, if applicable, install new netting.	
3. Continue inspections until vegetation is firmly established.	

SOIL ROUGHENING

DESCRIPTION
Soil roughening is a temporary erosion control practice often used in conjunction with grading. Soil roughening involves increasing the relief of a bare soil surface with horizontal grooves by either stair-stepping (running parallel to the contour of the land) or using construction equipment to track the surface. Slopes that are not fine graded and left in a roughened condition can also reduce erosion. Soil roughening reduces runoff velocity, increases infiltration, reduces erosion, traps sediment, and prepares the soil for seeding and planting by giving seed an opportunity to take hold and grow.

APPLICABILITY
Soil roughening is appropriate for all slopes, but works especially well on slopes greater than 3:1, on piles of excavated soil, and in areas with highly erodible soils. This technique is especially appropriate for soils that are frequently disturbed, because roughening is relatively easy. To slow erosion, roughen the soil as soon as possible after the vegetation has been removed from the slope or immediately after grading activities have ceased (temporarily or permanently). Use this practice in conjunction with seeding, planting, and temporary mulching to stabilize an area. A combination of surface roughening and vegetation is appropriate for steeper slopes and slopes that will be left bare for longer periods of time.

SITING AND DESIGN CONSIDERATIONS
Roughened slope surfaces help establish vegetation, improve infiltration, and decrease runoff velocity. A rough soil surface allows surface ponding that protects lime, fertilizer, and seed and decreases erosion potential. Grooves in the soil are cooler and provide more favorable moisture conditions than hard, smooth surfaces. These conditions promote seed germination and vegetative growth.

Avoid excessive soil compaction, because this inhibits vegetation growth and causes higher runoff velocity. Limit roughening with tracked machinery to sandy soils that do not compact easily; also, avoid tracking on heavy clay soils, especially when wet. Seed roughened areas as quickly as possible, and follow proper procedures.

Depending on the type of slope and the available equipment, use different methods for roughening soil on a slope. These include stair-step grading, grooving, and tracking. When choosing a method, consider factors such as slope steepness, mowing requirements, whether the slope is formed by cutting or filling, and available equipment. Choose from the following methods for surface roughening:

- *Cut slope roughening for areas that will not be mowed.* Use stair-step grades or groove-cut slopes for gradients steeper than 3:1. Use stair-step grading on any erodible material that is soft enough to be ripped with a bulldozer. Also, it is well suited for slopes consisting of soft rock with some subsoil. Make the vertical cut distance less than the horizontal distance, and slope the horizontal portion of the step slightly toward the vertical wall. Keep individual vertical cuts less than 2 feet deep in soft materials and less than 3 feet deep in rocky materials.
- *Grooving.* This technique uses machinery to create a series of ridges and depressions that run across the slope along the contour. Make grooves using any appropriate implement that can be safely operated on the slope, such as disks, tillers, spring harrows, or the teeth on a front-end loader bucket. Make the grooves less than 3 inches deep and less than 15 inches apart.
- *Fill slope roughening for areas that will not be mowed.* Fill slopes with a gradient steeper than 3:1 should be placed in lifts less than 9 inches, and properly compact each lift. The face of the slope should consist of loose, uncompacted fill 4 to 6 inches deep. If necessary, roughen the face of the slopes by grooving the surface as described above. Do not blade or scrape the final slope face.
- *Cuts, fills, and graded areas that will be mowed.* Make mowed slopes no steeper than 3:1. Roughen these areas with shallow grooves less than 10 inches apart and deeper than 1 inch using normal tilling, disking, or harrowing equipment (a cultipacker-seeder can also be used). Excessive roughness is undesirable where mowing is planned.
- *Roughening with tracked machinery.* To avoid undue compaction of the soil surface, limit roughening with tracked machinery only to sandy soils. Operate tracked machinery perpendicularly to the slope to leave horizontal depressions in the soil. Tracking is generally not as effective as other roughening methods.

LIMITATIONS
Soil roughening is not appropriate for rocky slopes. Tracked machinery can excessively compact the soil. Typically, soil roughening is effective only for gentle or shallow depth rains. If roughening is washed away in a heavy storm, re-roughen the surface and reseed.

MAINTENANCE CONSIDERATIONS
Inspect roughened areas after storms to see if re-roughening is needed. Regular inspection should indicate where additional erosion and sediment control measures are needed. If rills (small watercourses that have steep sides and are usually only a few inches deep) appear, fill, regrade, and reseed them immediately. Use proper methods.

EFFECTIVENESS
Soil roughening provides moderate erosion protection for bare soils while vegetative cover is being established. It is inexpensive and simple for short-term erosion control when used with other erosion and sediment controls.

TOPSOIL (SALVAGE AND UTILIZATION)

- SALVAGING AND STOCKPILING**
1. Determine depth and suitability of topsoil at the site.
 2. Prior to stripping topsoil, install any site-specific downslope practices needed to control runoff and sedimentation.
 3. Remove the soil material no deeper than what the county soil survey describes as "surface soil" (i.e., A or Ap horizon).
 4. Stockpile the material in accessible locations that neither interfere with other construction activities nor block natural drainage; and install silt fences, straw bales, or other barriers to trap sediment. (Several smaller piles around the construction site are usually more efficient and easier to contain than one large pile.)
 5. If soil is stockpiled for more than 6 mos., it should be temporarily seeded or covered with a tarp or surrounded by a sediment barrier.

- SPREADING TOPSOIL**
1. Prior to applying topsoil, grade the subsoil and roughen the top 3-4 in. by disking. This helps the topsoil bond with the subsoil.
 2. Do not apply topsoil when the site is wet, muddy or frozen, because it makes spreading difficult, inhibits bonding, and can cause compaction problems.
 3. Apply topsoil evenly to a depth of at least 4 in. (8-12 in. if the underlying material is bedrock, loose sand, rock fragments, gravel or other unsuitable soil material) Compact slightly to improve contact with the subsoil.
 4. After spreading, grade and stabilize.

- MAINTENANCE**
1. Inspect newly topsoiled areas frequently until vegetation is established.
 2. Repair eroded or damaged areas and replant.

TEMPORARY SEEDING

- SITE PREPARATION**
1. These installation practices are needed to control erosion, sedimentation, and water runoff, such as temporary and permanent diversions, sediment traps or basins, silt fences, and triangular silt dikes.
 2. Grade the site as specified in the construction plan.

- SEEDBED PREPARATION**
1. Fertilize as required.
 2. Work the fertilizer into the soil 2-4 in. deep with a disk or rake operated across the slope.

- SEEDING**
1. Select a seeding mixture and rate from the table and plant at depth and on dates shown.
 2. Apply seed uniformly with a drill or cultipacker-seeder or by broadcasting, and cover to the depth shown.
 3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
 4. Mulch seeded areas to increase seeding success.

- MAINTENANCE**
1. Inspect periodically after planting to see that vegetative stands are adequately established, re-seed if necessary.
 2. Check for erosion damage after storm events and repair, reseed and mulch if necessary.
 3. Topdress fall seeded wheat or rye seeding with 50 lbs./acre of nitrogen in February or March if nitrogen deficiency is apparent.

SEED SPECIES*	RATE/ACRE	PLANTING DEPTH	OPTIMUM DATES**
Wheat or rye	150 lbs.	1 to 1 1/2 in.	9/15 to 10/30
Spring oats	100 lbs.	1 in.	3/1 to 4/15
Annual ryegrass	40 lbs.	1/4 in.	3/1 to 5/1
			8/1 to 9/1
German millet	40 lbs.	1 to 2 in.	5/1 to 6/1
Sudangrass	35 lbs.	1 to 2 in.	5/1 to 7/30

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year.
** Seeding done outside the optimum dates increases the chance of seeding failure.

PERMANENT SEEDING

PERMANENTLY SEED ALL FINAL GRADE AREAS (e.g., landscape berms, drainage swales, erosion control structures, etc.) **AS EACH IS COMPLETED AND ALL AREAS WHERE ADDITIONAL WORK IS NOT SCHEDULED FOR A PERIOD OF MORE THAN A YEAR.**

- SITE PREPARATION**
1. These installation practices are needed to control erosion, sedimentation, and water runoff, such as temporary and permanent diversions, sediment traps or basins, silt fences, and triangular silt dikes.
 2. Grade the site as specified in the construction plan and fill in depressions that can collect water.
 3. Add topsoil to achieve needed depth for establishment of vegetation.

- SEEDBED PREPARATION**
1. Fertilize as required.
 2. Till the soil to obtain a uniform seedbed, working the fertilizer into the soil 2-4 in. deep with a disk or rake operated across the slope.

- SEEDING**
Optimum seeding dates are March 1-May 10 and August 10-September 30. Permanent seeding done between May 10 and August 10 may need to be irrigated. As an alternative, use temporary seeding until the preferred date for permanent seeding.

1. Select a seeding mixture and rate from the table and plant at depth and on dates shown.
2. Apply seed uniformly with a drill or cultipacker-seeder or by broadcasting, and cover to the depth shown.
3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
4. Mulch seeded areas. Use erosion control blankets on sloping areas. If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.

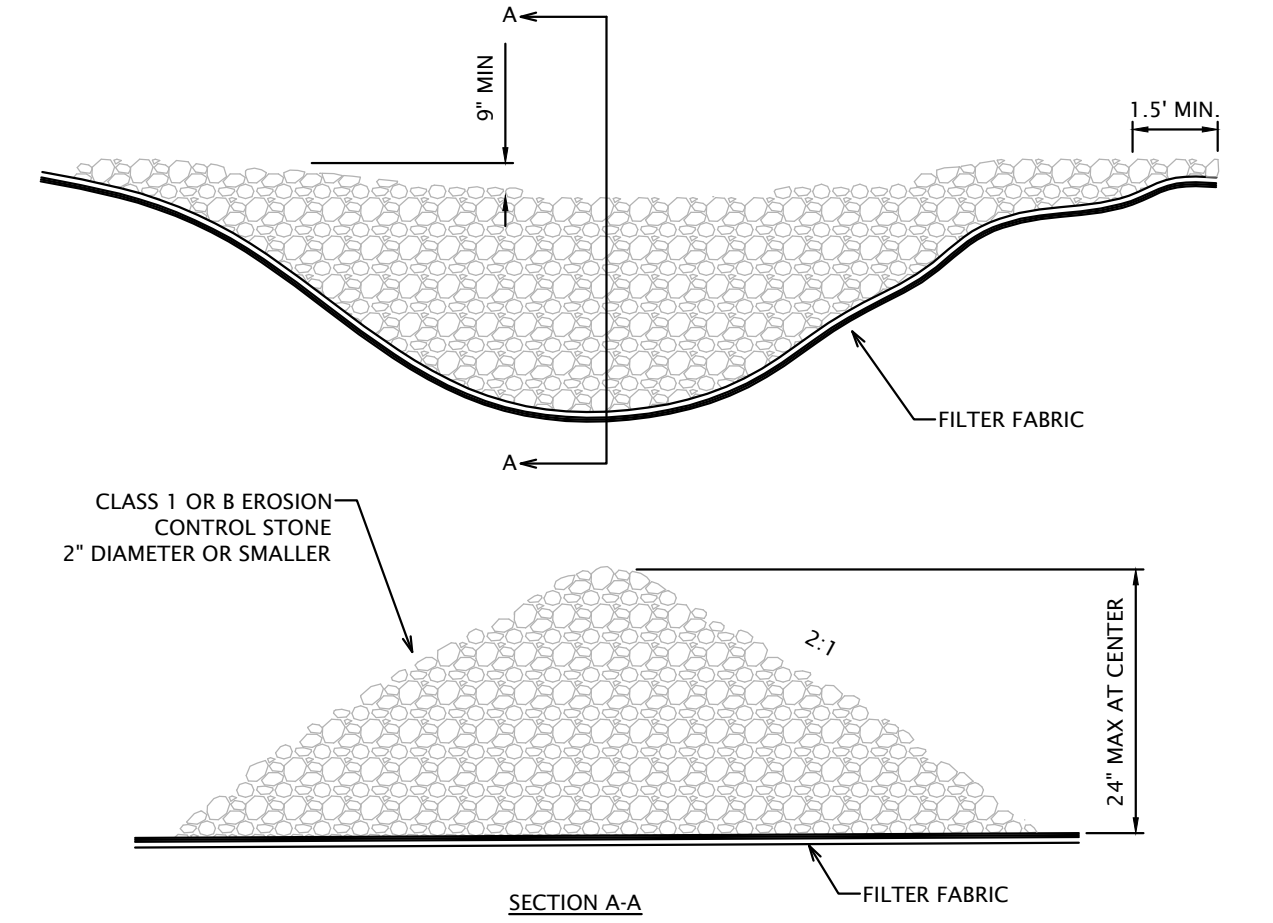
- MAINTENANCE**
1. Inspect periodically after planting to see that vegetative stands are adequately established, re-seed if necessary.
 2. Check for erosion damage after storm events and repair, reseed and mulch if necessary.

PERMANENT SEEDING RECOMMENDATIONS
This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and drought.

SEED SPECIES AND MIXTURES	RATE/ACRE	OPTIMUM SOIL pH
OPEN AND DISTURBED AREAS (REMAINING IDLE FOR MORE THAN ONE YEAR.		
1. Perennial ryegrass	35-50 lbs.	5.6 to 7.0
+ white or ladino clover	1 to 2 lbs.	
1. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ smooth brome	10 lbs.	
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white or ladino clover	1 to 2 lbs.	

RUNOFF CONTROL MEASURES

RIP-RAP CHECK DAMS



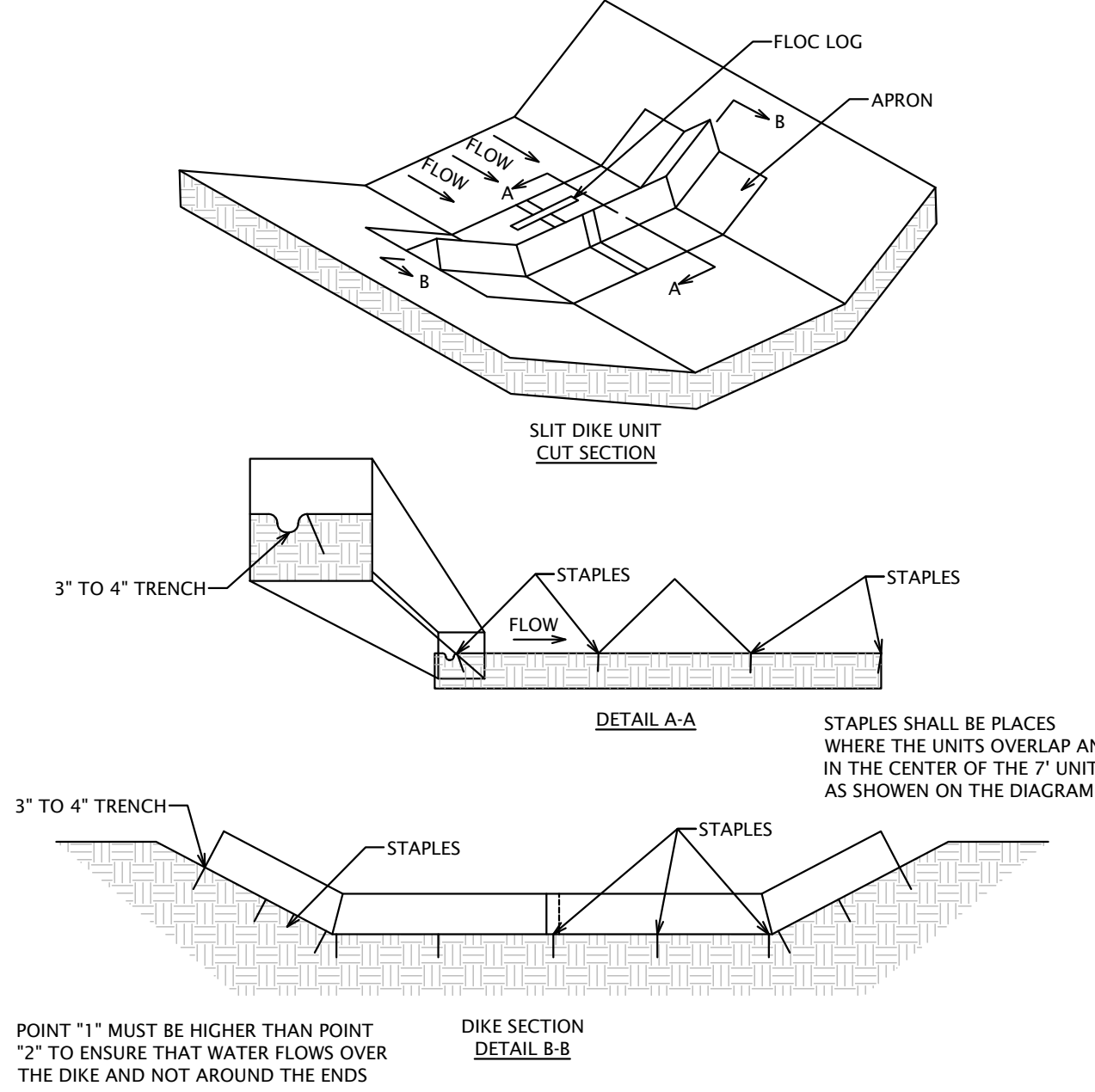
- MAINTENANCE**
1. Inspect after each storm event.
 2. Remove built-up sediment and repair/replace the check dams as needed.

TRIANGULAR SILT FENCE DIKE - CHECK DAMS

MATERIAL: The triangular-shaped inner material shall be urethane foam. The outer cover shall be a woven geotextile fabric placed around the inner material and allowed to extend beyond both sides of the triangle two to three (2' - 3') feet.

ANCHORING: The Dikes shall be attached to the ground with Wire Staples. The Staples shall be No. 11 gauge wire and be at least six to eight (6" - 8") inches long. Staples shall be placed as indicated on the installation detail.

- INSTALLATION**
1. Place triangular silt fence dike as required.
 2. Attach dikes to the ground with staples as indicated on the detail.



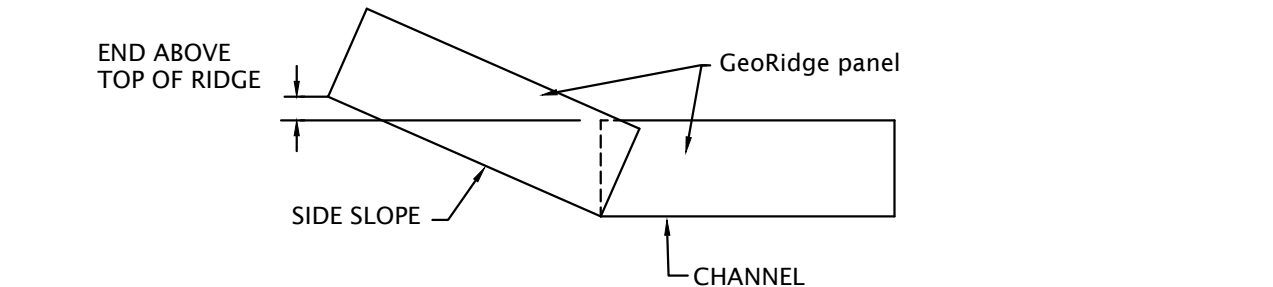
- MAINTENANCE**
1. Inspect after each storm event.
 2. Remove built-up sediment and repair/replace the silt dikes as needed.

GEORIDGE DITCH BERM - CHECK DAMS

MATERIAL: GeoRidge or GeoRidge Bio by Nilex Products
a HDPE product that serves to dissipate water energy within a ditch or channel.

GeoRidge is to be used in applications where the measure will be removed after the channel is stabilized. GeoRidge Bio can be used when the measure can be left to decompose in lieu of being removed.

- INSTALLATION**
1. Place an erosion control blanket (ECB), laid parallel with the channel direction, in the area where the GeoRidge is to be placed. ECB shall be appropriate for the channel slope, volume and velocity. ECB shall be secured with a 4" trench at the upstream edge, with min. 6" staples placed 21" o.c. along the upstream and downstream edges.
 2. Place GeoRidge berm in the middle of the ECB, perpendicular to the channel flow direction, and anchor with 10" spiral spikes. A minimum of 3 anchors shall be used on the upstream side and 2 anchors on the downstream side. If more than one GeoRidge berm panel is required to span the channel, line up the anchoring holes for installation of the anchors.
 3. When placing the GeoRidge panel on the side slope of the channel, the bottom of the panels should meet with the ridge being overlapped. This will prevent water from passing through the berm. Additionally the outside edge of the panel on the side slope should be installed so that it is higher than the top of the panel in the channel bottom.



4. **SPACING:** The spacing is calculated by dividing the height of the GeoRidge by the gradient of the channel slope. 9"/.02 gradient = 450" or 37.5'

- MAINTENANCE**
1. Inspect after each storm event.
 2. Remove built-up sediment when it reaches 1/2 the height of the GeoRidge.
 3. Repair/replace the GeoRidge and the ECM as needed.

SEDIMENT CONTROL MEASURES

POLYMER SYSTEMS

- MATERIAL:** APS 700 Series Floc Log
- INSTALLATION:**
1. The Floc Log vendor shall sample the water that is to be treated with the system. This sample shall be used to determine the site-specific polymer mix that should be used.
 2. In applications where the objective of this measure is to meet the Total Suspended Solids requirements prior to completion of the detention pond; i.e. the side slopes are not fully stabilized, dewatering the pond for further expansion, etc., the Floc Log should be installed at the end of the outfall pipe and a temporary material such as Geojute should be placed downstream of the Floc Log providing a sediment settling area. (See plans for specific installation locations)
 3. In applications where the objective of this measure is to meet the Total Suspended Solids requirements after the detention pond is completed, the Floc Log should be installed at the end of the inlet pipes into the detention pond. This will cause the sediment to settle more quickly in the wet detention pond, providing a cleaner discharge. (See plans for specific installation locations)
 4. Following the use of the Floc Log, the settled sediment will need to be removed. This temporary settling media removed, or the detention pond might need to be cleaned if sediment settling has significantly reduced the pond volume.

- MAINTENANCE**
1. Inspect after storm events to check for movement of mulch or for erosion.
 2. If washout, breakage, or erosion is present in the sediment settling media, repair the media.
 3. Be sure the Floc Log is secure attached at the installed location, verify that storm water is having contact with the Floc Log.

FIBER ROLLS

MATERIAL: Tube shaped fiber rolls filled with straw, flax, rice, coconut fiber material, mulch, or composted material. Each roll is wrapped with UV-degradable polypropylene netting for longevity or with 100 percent biodegradable materials like burlap, jute, or coir.

- INSTALLATION:**
1. Install rolls parallel with the slope contour, with the ends slightly lower than the mid-section, to prevent water ponding at the mid-section. Turn the ends slightly upslope to prevent water from bypassing the measure.
 2. Excavate a trench with a width and depth equal to one-fourth the diameter of the log.
 3. Where applicable install the measure upslope of a curb or sidewalk. Placing the measure against the curb will provide additional stability and resistance to surface flow.
 4. Place rolls end to end to form a continuous barrier.
 5. Hardwood stakes shall be driven through the rolls, spaced no greater than 5' to a depth of 18".
 6. The fiber rolls should be fastened to the hardwood stakes with rope.
 7. Backfill the trench with excavated soil to ground level on the down-slope side and 2" above ground level on the up-slope side of the roll.

- MAINTENANCE:**
1. The rolls should be inspected weekly and after each rainfall event. Inspection should include if the material's diameter is less than specification and if the outer netting has been degraded or broken.
 2. Remove accumulated sediment when it reaches one-quarter of the height of the roll.
 3. Repair eroded and damaged areas.
 4. If ponding becomes excessive, rolls should be removed and either reconstructed or new product installed.

SEDIMENT BASINS

MATERIAL: Depressional areas constructed at the outfall of pipes, end of channels, or end of surface sheet flow, which serves to settle out the suspended solids.

- INSTALLATION:**
1. At locations shown on the plans, the contractor shall excavate a small basin. The basin size shall be shown on the plans and is determined by the volume of water tributary to the basin. The basin overflow elevation shall be lower than the incoming water, by a minimum of 12 inches.
 2. The basin shall be lined with a geotextile fabric, 9" of 4" riprap shall be placed all around the inside of the basin.

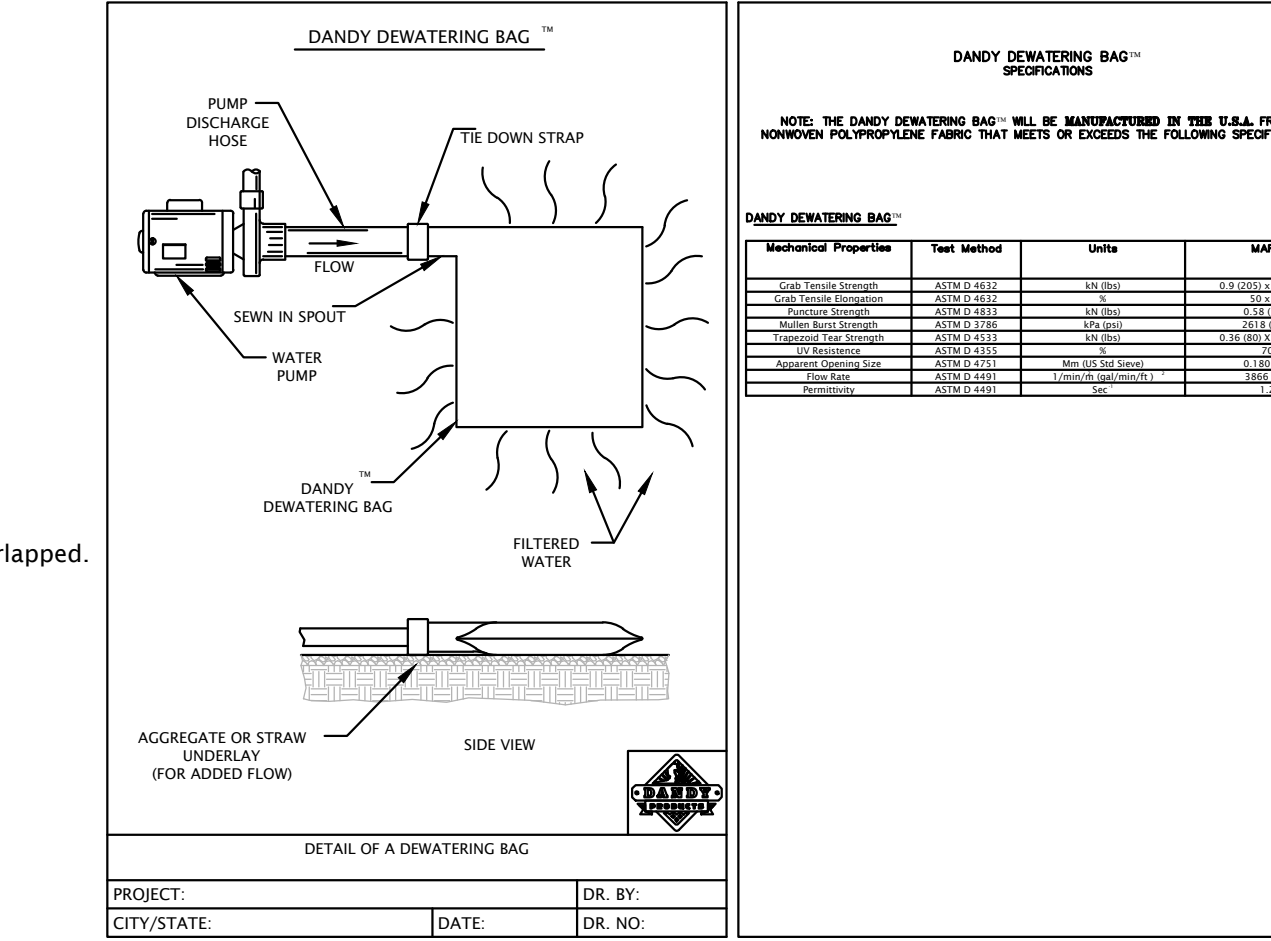
- MAINTENANCE:**
1. The basins should be inspected weekly and after each rainfall event.
 2. Replace and restore any basin bank erosion.
 3. Repair or replace any displaced riprap.
 4. Reexcavate and replace the basin when it becomes more than 50% full of sediment.

DEWATERING BAGS

MATERIAL: "Dandy" Dewatering Bag or "Pump-it" Dewatering Bag

- INSTALLATION:**
1. At location of the dewatering pump outfall.
 2. Size the bag to the discharge rate, the maximum bag size may limit the discharge rate of the pump.
 3. Connect bag to pump outfall per manufacturer's instructions.
 4. Install bag upstream of the receiving structure location.
 5. Outlet to grass area if possible.

- MAINTENANCE:**
1. The basins should be inspected prior to each use.
 2. Replace bag when it is half full.



NOT FOR CONSTRUCTION



DVG Inc.
Project Management and Development Consulting
11065 Broadway, Suite D
Crown Point, IN 46307
(219) 662-7710 Fax (219) 662-2740

NOT FOR CONSTRUCTION

Centennial Village L.L.C.
9615 Boulevard Drive
Highland, Indiana 46322

DWG # 14-C-1011	
REVISIONS AND NOTES:	DATE:

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Centennial Village - Lot 2
Munster, Indiana
Storm Water Pollution Prevention Plan Details

SCALE: NONE	
DESIGN BY: DVG	
DRAWN BY: JEH	
DATE: 10-18-16	

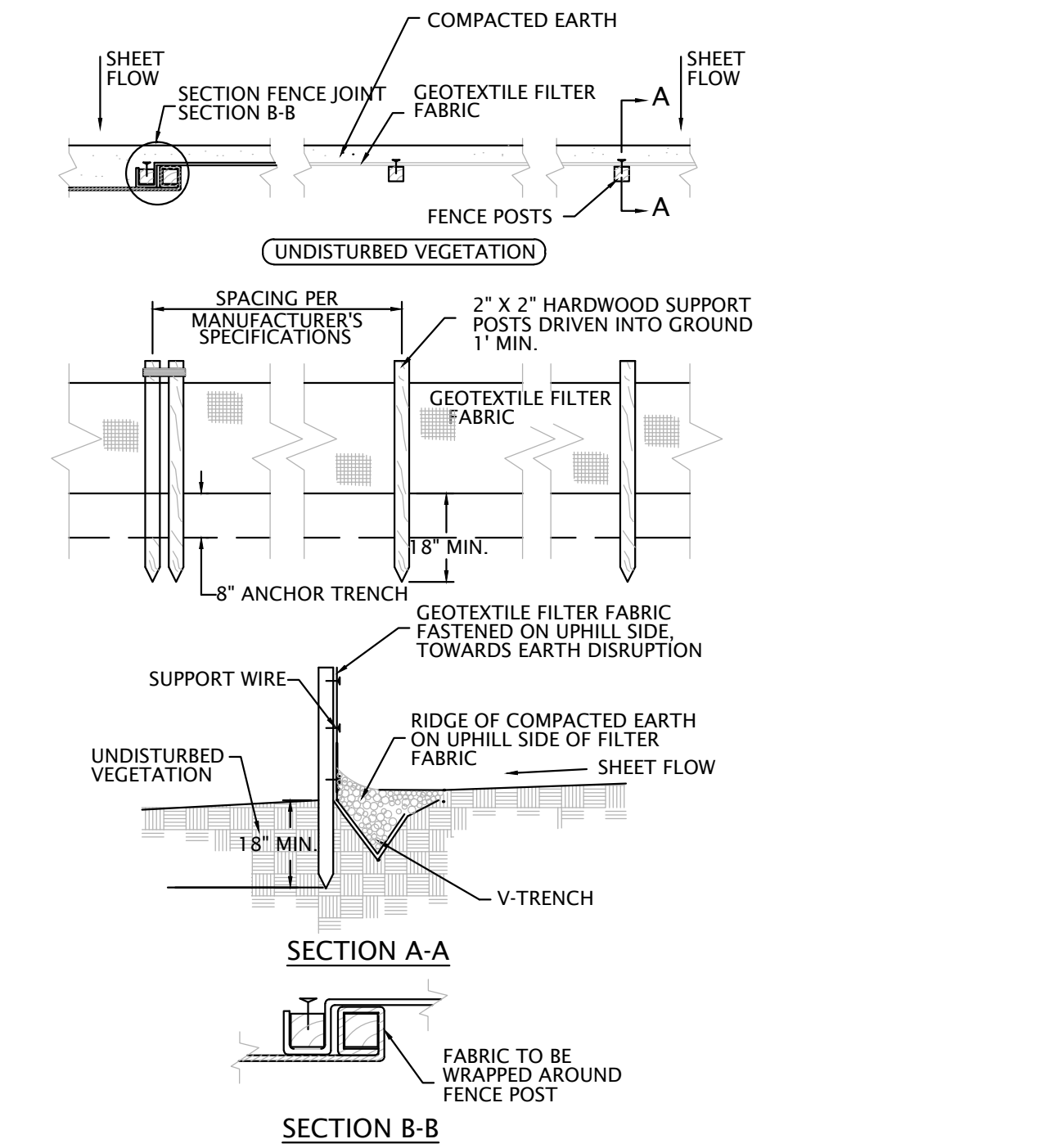
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SEDIMENT CONTROL MEASURES (continued)

SILT FENCE

APPROACH: Pool area flat (less than 1% slope), with sediment storage of 945 cu.ft./acre disturbed.
MATERIAL: Ameco No. 2130 silt stop with posts, manufactured by Mid-West Construction Products at 1-800-426-9647 or 1-317-781-2380, or approved equal.
-When construction will be on going for more than 90 days, SS-700 SiltSaver Belted fence, or approved equal should be considered for longevity.
2 x 2 in. hardwood stakes with a length equal to the height of the silt fence plus 1 ft.

ANCHORING:
INSTALLATION
1. Drive stakes 1 ft. min. into ground and attach fabric to stakes with stapler.
2. Bottom of fabric shall be placed under 6 inches of compacted soil to prevent sediment flow underneath the fence.
3. Ensure that all supporting posts are on the down slope side of the fencing.



MAINTENANCE
1. Inspect after each storm event.
2. Remove built-up sediment and repair/replace the silt fence as needed.

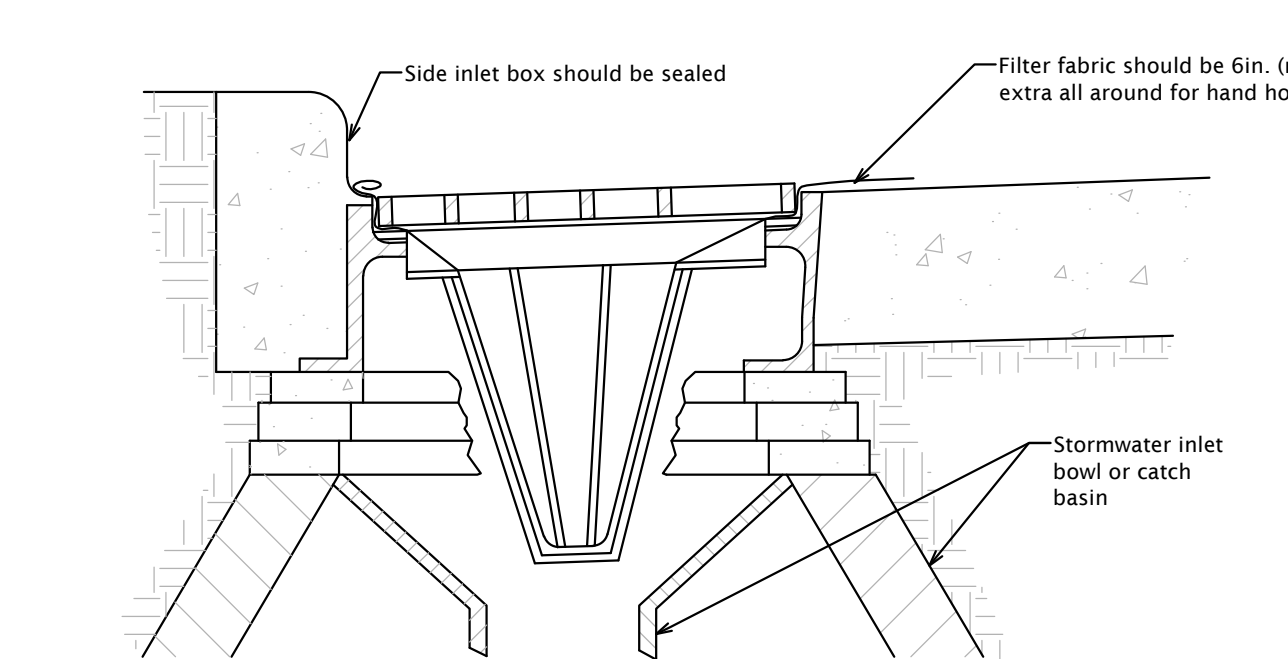
ADDITIONAL CONSIDERATIONS
1. When protecting slopes, fences should be installed parallel to the slope contour.
2. On slopes the steepness of grade will determine the maximum distance between parallel fences.
less than 2% 100ft maximum
between 2% and 5% 75ft maximum
greater than 5% additional surface stabilization shall be provided.

BASKET CURB INLET PROTECTION

CONTRIBUTING DRAINAGE AREA: 1/4 acre maximum.
LOCATION: At curb inlets where barriers surrounding them would be impractical or unsafe.
MATERIAL: CATCH-ALL STORMWATER INLET PROTECTOR or approved equal.
Marathon Materials, Inc. 1-800-983-9493 or www.marathonmaterials.com

CAPACITY: Runoff from a 2-yr frequency, 24-hr duration storm event entering a storm drain without by-pass flow.
BASKET: Fabricated metal with top width-length dimensions such that the basket fits into the inlet without gaps.
GEOTEXTILE FABRIC: for filtration.

INSTALLATION
1. Install basket curb inlet protections as soon as inlet boxes are installed in the new development or before land disturbing activities begin in a stabilized area.
2. If necessary, adapt basket dimensions to fit inlet box dimensions, which vary according to the manufacturer and/or model.
3. Seal the side inlets on those types of inlet boxes that have them.
4. Remove the grate and place the basket in the inlet.
5. Cut and install a piece of filter fabric large enough to line the inside of the basket and extend at least 6 inches beyond the frame.
6. Replace the inlet grate, which also serves to anchor the fabric.

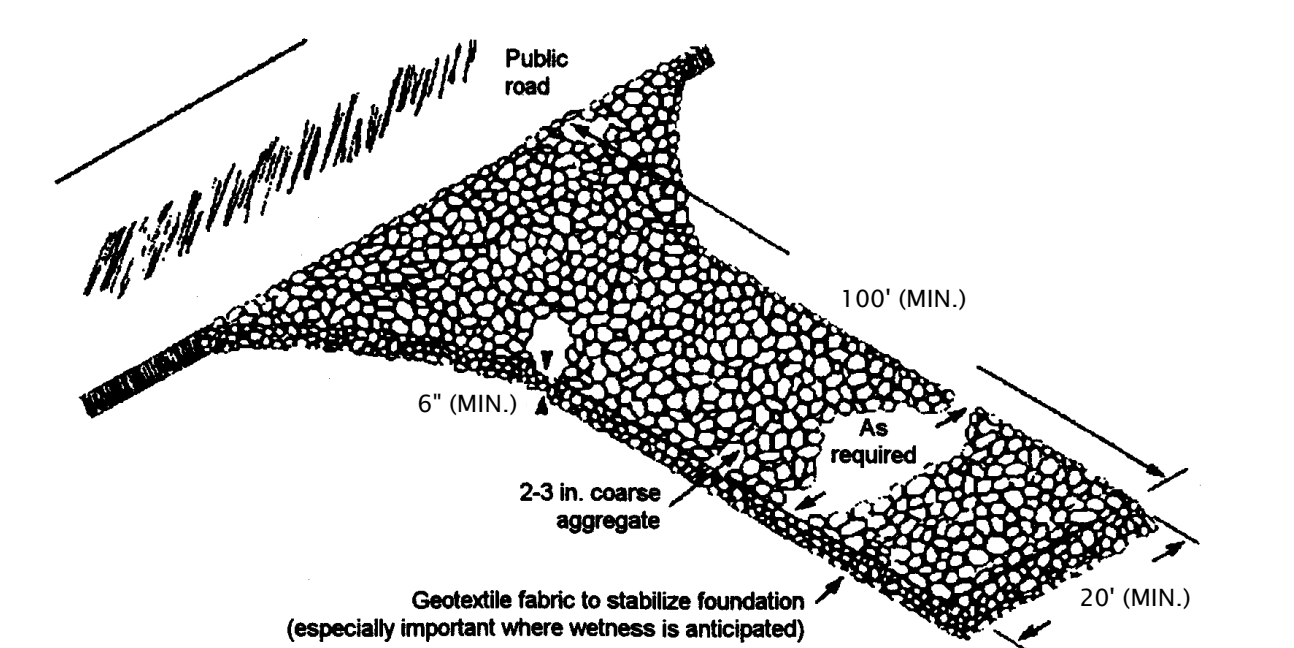


MAINTENANCE
1. Inspect after each storm event.
2. Remove built-up sediment and replace the geotextile fabric after each storm event.
3. Periodically remove sediment and tracked-on soil from the street (but not by flushing with water) to reduce the sediment load on this curb inlet practice.

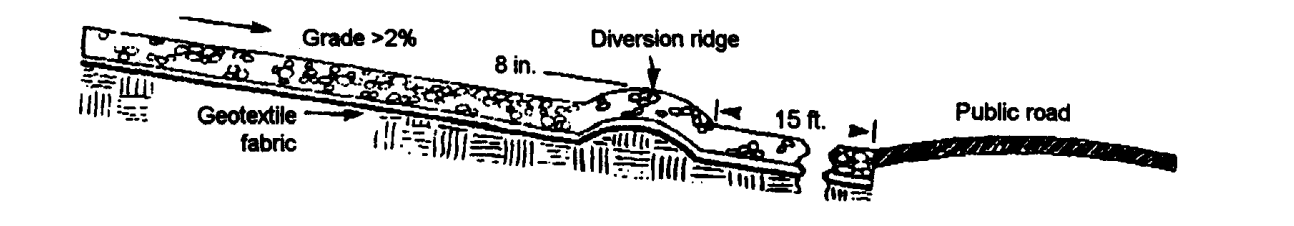
COMMON CONCERNS
1. Sediment not removed and geotextile fabric not replaced following a storm event - results in increased sediment, tracking, traffic hazard, and excessive ponding.
2. Geotextile fabric permittivity too low - results in rapid clogging, thus severe ponding, sediment enters the drain if the fabric breaks.
3. Drainage area too large - results in sediment overload and severe ponding; sediment enters the drain if the fabric breaks.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT PAD

MATERIAL: 2-3 in. washed stone (INDOT CA No. 2) over a stable foundation.
THICKNESS: 6 in. minimum.
WIDTH: 12 ft. minimum or full width of entrance/exit roadway, whichever is greater.
LENGTH: 50 ft. minimum. The length can be shorter for small sites such as for an individual home.
WASHING FACILITY (optional): Level area with 3 in. washed stone minimum or a commercial rack, an waste water diverted to a sediment trap or basin (Practice 3.72).
GEOTEXTILE FABRIC UNDERLINER: May be used under wet conditions or for soils within a high seasonal water table to provide greater bearing strength.



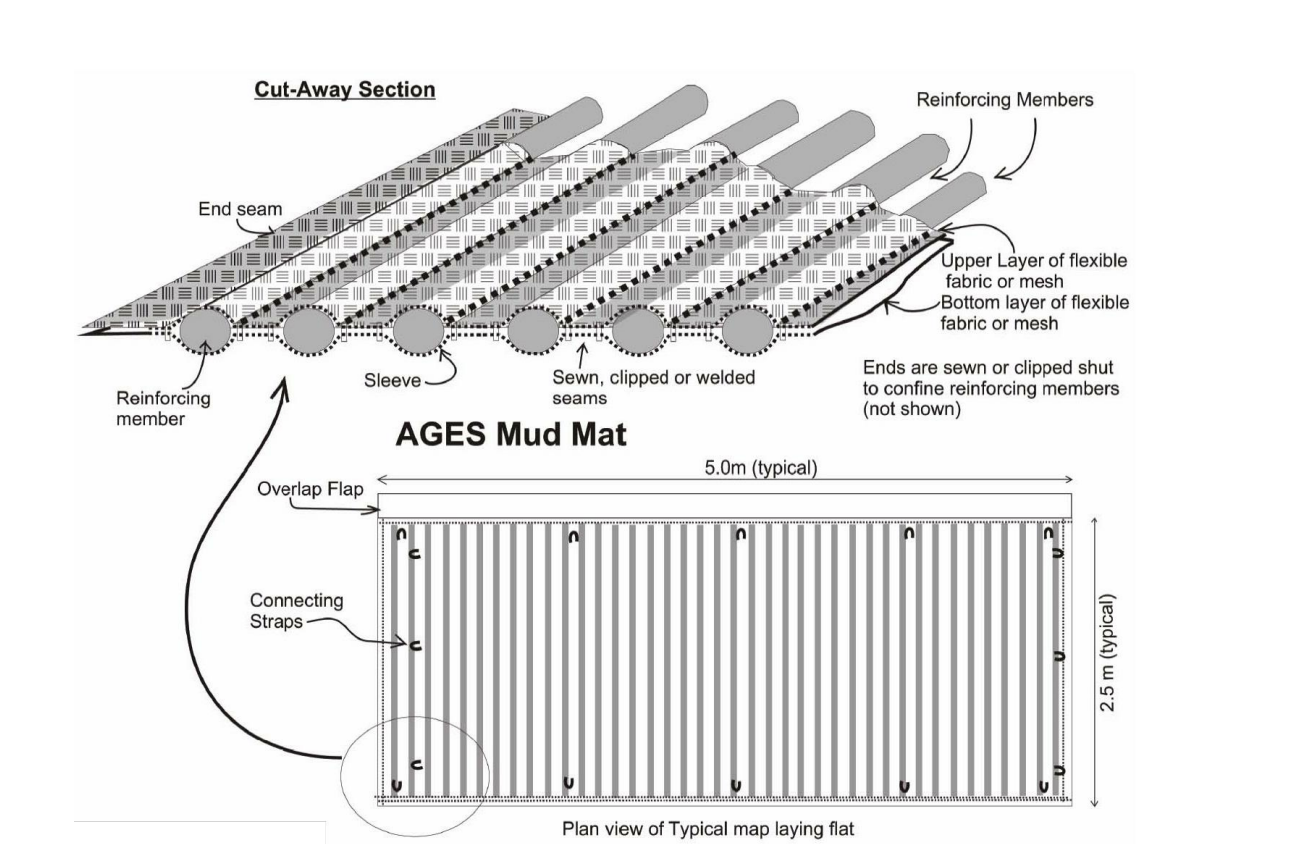
INSTALLATION
1. Avoid locating on steep slopes or at curves in public roads.
2. Remove all vegetation and other objectionable material from the foundation area, and grade and crown for positive drainage.
3. If slope towards the road exceeds 2%, construct a 6-8 in. high water bar (ridge) with 3:1 side slopes across the foundation area about 15 ft. from the entrance to divert runoff away from the road (Practice 3.24) see exhibit.
4. Install pipe under the pad if needed to maintain proper public road drainage.
5. If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.
6. Place stone to dimensions and grade shown in the erosion/sediment control plan, leaving the surface smooth and sloped for drainage.
7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.



MAINTENANCE
1. Inspect entrance pad and sediment disposal area weekly and after storm events or heavy use.
2. Reshape pad as needed for drainage and runoff control.
3. Topdress with clean stone as needed.
4. Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used if the water is conveyed into a sediment trap or basin.
5. Repair any broken road pavement immediately.

MUD MATS - ENTRANCE STABILIZATION

MATERIAL: MUD MAT BY AGES, REUSEABLE SOIL STABILIZATION SYSTEM



INSTALLATION
1. Avoid locating on steep slopes or at curves in public roads.
2. Remove all vegetation and other objectionable material from the foundation area, and grade and crown for positive drainage.
3. Install per manufacturer's recommendations. Unroll, connect mats together to form area of protection and properly anchor to ground.
4. Divert all surface runoff and drainage from the mud mat to a sediment trap or basin.
5. Minimum size of the mat is 12' wide and 50' long.

MAINTENANCE
1. Inspect entrance pad daily and remove built-up debris as necessary.
2. Inspect entrance pad for breaks and tears in the material. Repair or replace as necessary.
3. Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used if the water is conveyed into a sediment trap or basin.
4. Repair any broken road pavement immediately.

MATERIAL MANAGEMENT MEASURES (HOUSEKEEPING)

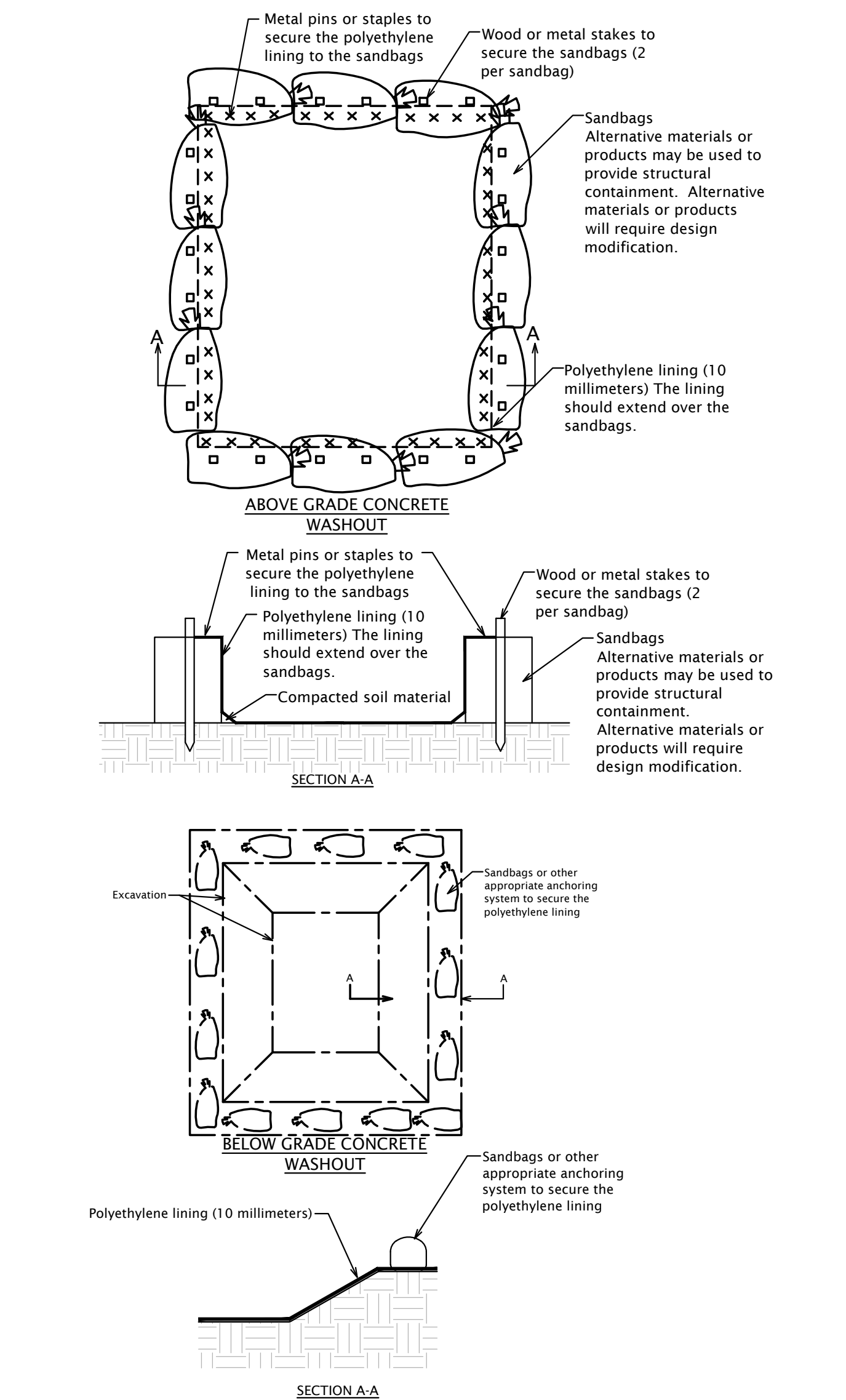
CONCRETE WASHOUT

LOCATION
• Locate concrete washout systems at least 50 feet from any creeks, wetlands, ditches, karst features, or storm drains/manmade conveyance systems.
• Locate concrete washout systems in relatively flat areas that have established vegetative cover and do not receive runoff from adjacent land areas.
• Locate away from other construction traffic in areas that provide easy access for concrete trucks.

MATERIALS
• Minimum of ten mil polyethylene sheeting, free of holes, tears, and other defects.
• Orange safety fencing or equivalent.
• Sandbags
• Metal pins or staples six inches in length minimum.

INSTALLATION
• A base shall be constructed and prepared that is free of rocks and other debris that may cause tears or punctures in the polyethylene lining.
• Install the polyethylene lining. For excavated systems, the lining should extend over the entire excavation. The lining for bermed systems should be installed over the pooling area with enough material to extend the lining over the berm or containment system. The lining should be secured with pins, staples, or other fasteners.
• Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
• Install signage that identifies concrete washout areas.
• Where necessary, provide stable ingress and egress or alternative approach pad.

MAINTENANCE
• Inspect daily and after each storm event.
• Inspect the system for leaks, spills, and tracking of soil by equipment.
• Inspect the polyethylene lining for failure, including tears and punctures.
• Once concrete wastes harden, remove and dispose of the material.
• Excess concrete should be removed when the washout system reaches 50 percent of the design capacity. Use of the system should be discontinued until appropriate measures can be initiated to clean the structure.
• Upon removal of the solids, inspect the structure. Repair the structure as needed or construct a new system.
• Dispose of all concrete in a legal manner. Reuse the material on site, recycle, or haul the material to an approved construction/demolition landfill site. Recycling of material is encouraged. The waste material can be used for multiple applications including but not limited to roadbeds and building. The availability for recycling should be checked locally.
• The plastic liner should be replaced after every cleaning; the removal of material will usually damage the lining.
• The concrete washout system should be repaired or enlarged as necessary to maintain capacity for concrete waste.
• Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method. Disposal may be allowed at the local sanitary sewer authority provided their National Pollutant Discharge Elimination System permits allow for acceptance of this material. Another option would be to utilize a secondary containment system or basin for further dewatering.
• Inspect construction activities on a regular basis to ensure suppliers, contractors, and others are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify the violators and take appropriate action.
• When concrete washout systems are no longer required, the concrete washout systems shall be closed. dispose of all hardened concrete and other materials used to construct the system.
• Holes, depressions, and other land disturbances associated with the system should be backfilled, graded, and stabilized.



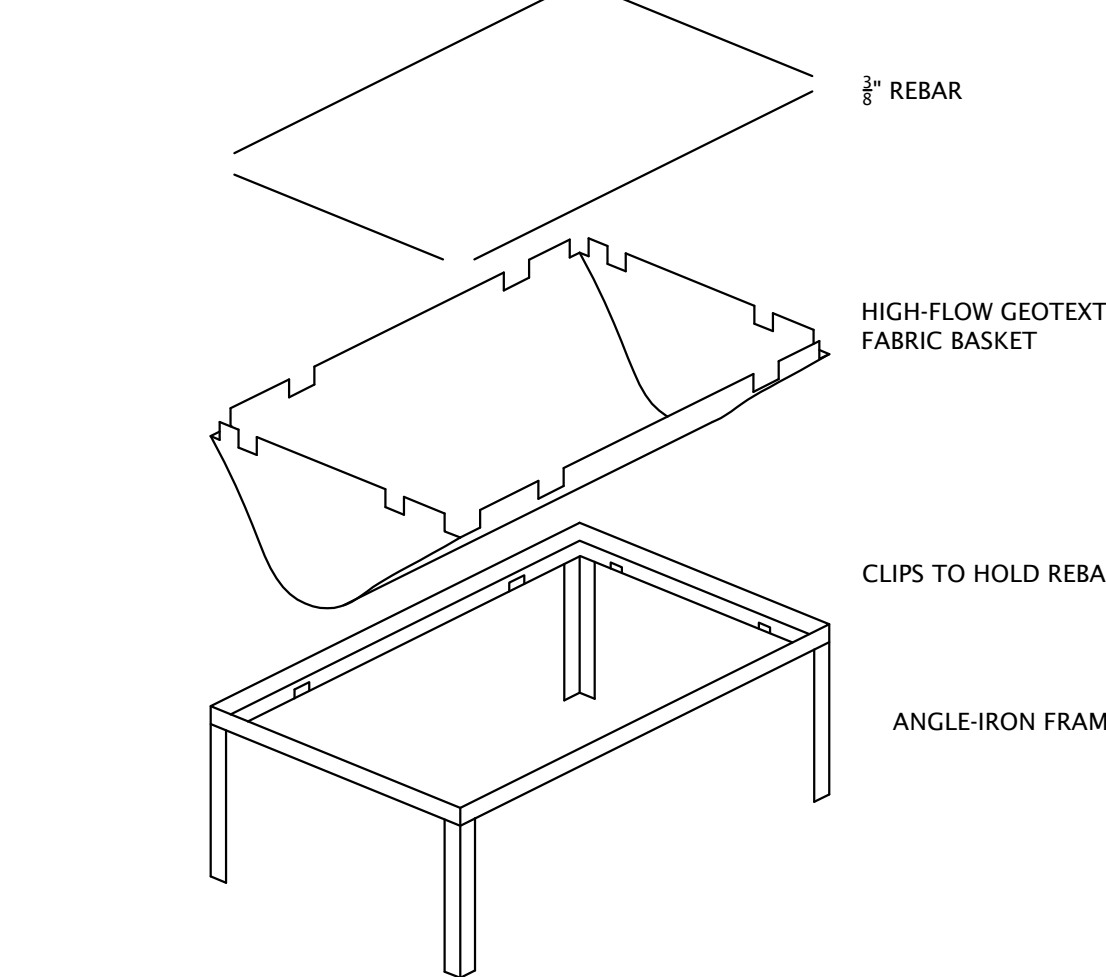
COMMON CONCERNS
• Complete construction/installation of the system and have washout locations operational prior to concrete delivery.
• It is recommended that washout systems be restricted to washing concrete from mixer and pump trucks and not used to dispose of excess concrete or residual loads due to potential to exceed the design capacity of the washout system.
• Install systems at strategic locations that are convenient and in close proximity to work areas and in sufficient number to accommodate the demand for disposal.
• Install signage identifying the location of concrete washout systems.

FRYEFLOW FILTRATION SYSTEMS WASHOUT

MATERIALS
FryeFlow Filtration Systems concrete washout device.

INSTALLATION
• Insert Rebar into pockets of Debris Bag.
• Install FryeFlow Systems Debris Bag into Angle Iron Frame.
• Make sure rebar sets behind rebar brackets.
• Make sure frame and bag is set on flat surface
• Install signage that identifies concrete washout areas.
• Where necessary, provide stable ingress and egress or alternative approach pad.

MAINTENANCE
• Once Debris Bag is full, use handles provided to lift out of frame.
• Remove rebar from side pockets.
• Insert new Debris Bag.



SPILL PREVENTION AND CONTROL PLAN

• Only approved fuel storage tank shall be allowed on site.
• Spill Kits must be located on-site in the vicinity of the fuel storage sink.
• Mobile Fueling shall be used whenever possible.
• Fueling should take place in a central location.
• Equipment should be kept in good working order, well maintained so that breakdowns, and equipment failures are reduced.

FUEL STORAGE

• All fuel tanks on site shall have secondary containment approved by IDEM.
• No fuel tanks are to be located within 100 feet of a storm sewer inlet.
• Fuel storage system shall be kept in good working order and shall be subject to periodic IDEM inspections.
• Spill Kits must be located on-site in the vicinity of the fuel storage sink.
• Fuel tanks shall have a safety gauge.

STOCKPILES

The contractor shall locate topsoil stockpiles on-site as noted on the S.W.P.P.P. and shall encompass each with sediment ditch and silt fence.
In cases where the stockpile is small and will be removed from the site within 15 days, the contractor can cover the stockpile with a waterproof tarpauline type cover.
No off-site stockpiles are being proposed. Any off-site stockpiles that the contractor utilizes shall follow the same requirements as on-site stockpiles. The contractor shall identify to the local S.W.P.P.P. enforcement agency the locations of any off-site stockpiles.

TEMPORARY FACILITIES

The contractor shall follow the procedures delineated on the plan in order to construct and maintain the facilities shown on the drawings to control water and wind erosion during construction of the project.
All disturbed surface areas (including utility trenches) shall be temporarily graded and/or ditched to direct water runoff from such areas to sedimentation control devices which will prevent disturbing eroded water carrying soil from entering a watercourse, sewer, or adjacent lands. Such sedimentation control devices shall include but not be limited to protective ditches, sediment traps, sediment filters, ditch traps, pipe barriers, silt dikes, check dams, chemical settling filters.
Upon completion of the rough grading all areas not effected by construction traffic shall be permanently seeded, and erosion control blankets installed on side slopes that exceed 5:1.
In roadway areas temporary aggregate surfacing shall be placed immediately after the backfilling has been completed. Positive dust control measures shall be taken at all times.

Within 14 days from the date a project improvement is installed the contractor shall proceed with final cleanup and restoration of the project area disturbed including spoil areas, and complete such operations within the next 15 days. If seasonal conditions prevent final cleaning and restoration, the contractor shall proceed with temporary stabilization of the disturbed areas. Final cleanup and restoration will consist of final grading, applying topsoil, seeding and mulching and/or sodding of all disturbed areas of the project. Temporary stabilization shall consist of rough grading the disturbed areas to a condition ready to receive topsoil, seeding, and mulching in accordance with the temporary seeding schedule. Temporary stabilization materials shall be removed, disposed of, and final cleanup and restoration shall be completed not later than 60 days after seasonal conditions allow performance of the required work.

MATERIAL HANDLING AND STORAGE

The contractor shall minimize the disturbance of excavated soils by minimizing the number of times the soil is handled. On-site handling of soils will occur during excavation, loading, and spreading activities. Fuel for heavy equipment and vehicles will not be stored on the site during construction operations. Mobile fuel tanks will fuel heavy equipment. In the event of a spill or leak the contractor shall follow proper procedures to minimize concern. The contractor shall:
• Take immediate measures to control and contain the spill to prevent release into sewers or surface waters.
• Notify the Local Fire Department immediately at 9-1-1.
• Notify the Federal Emergency Spill Hotline at 1-800-424-8802 within 2 hours if the amount is above a reportable quantity or any amount enters a waterway or storm sewer.
• Notify the Indiana Emergency Response Hotline at 1-888-233-7745.
• Follow the guidelines for handling the spill as outlined in the included Material Safety Data Sheets.

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L.L.C.
9615 Boulevard Drive
Highland, Indiana 46322

DVG # 14-C-1011

REVISIONS AND NOTES:	DATE:

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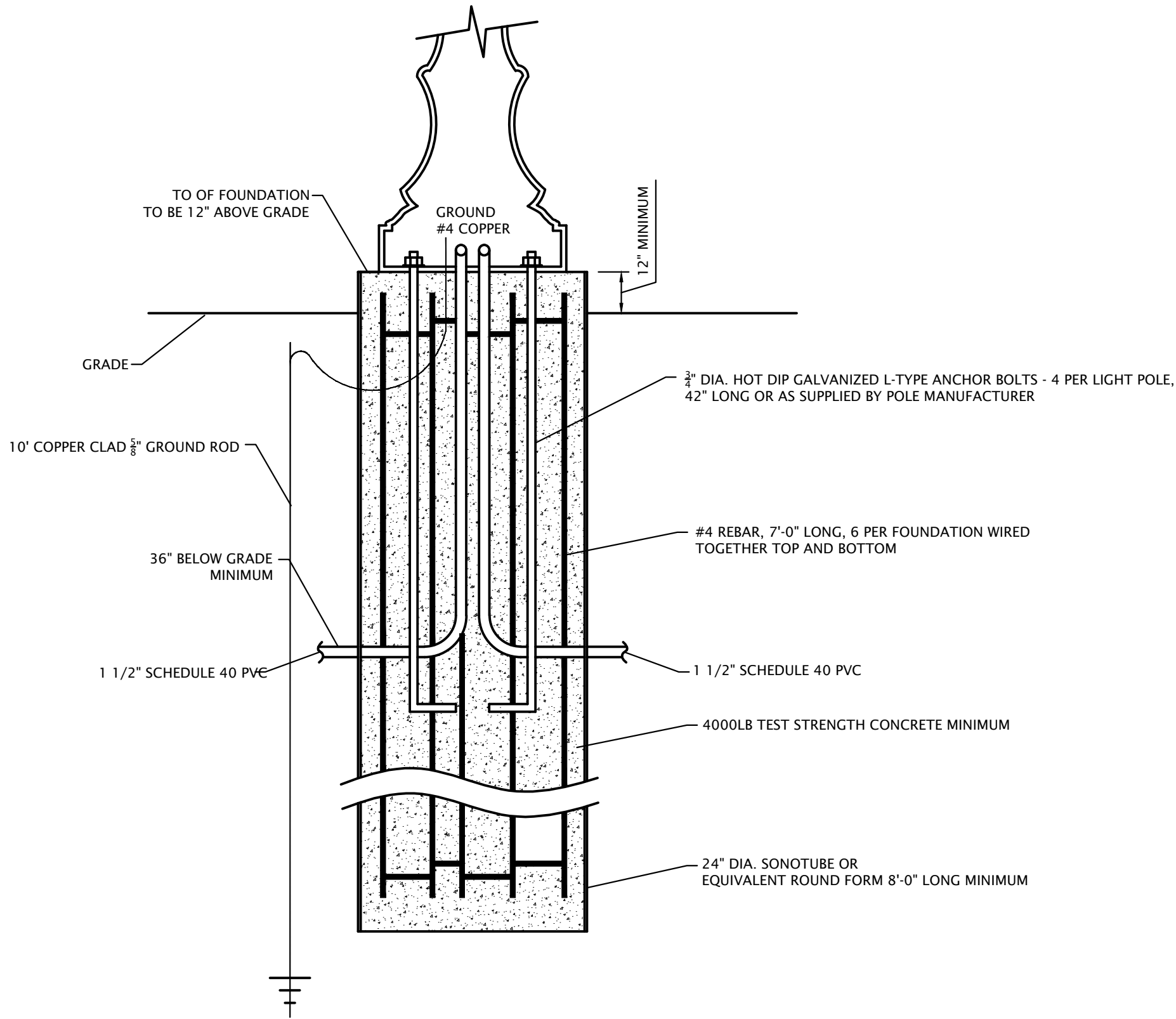
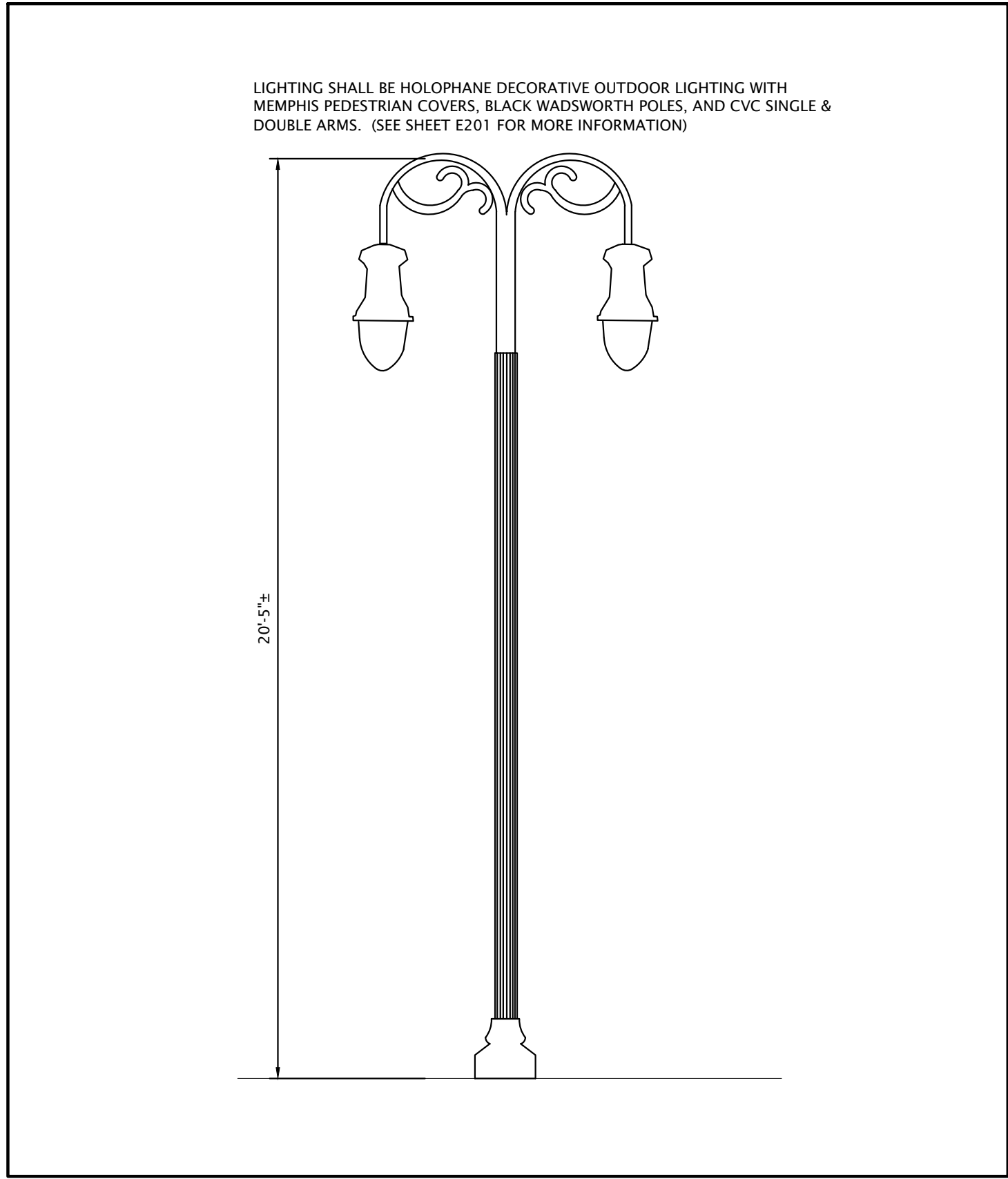
Centennial Village - Lot 2
Munster, Indiana

Storm Water Pollution
Prevention Plan Details

SCALE: NONE
DESIGN BY: DVG
DRAWN BY: JEH
DATE: 10-18-16

C304

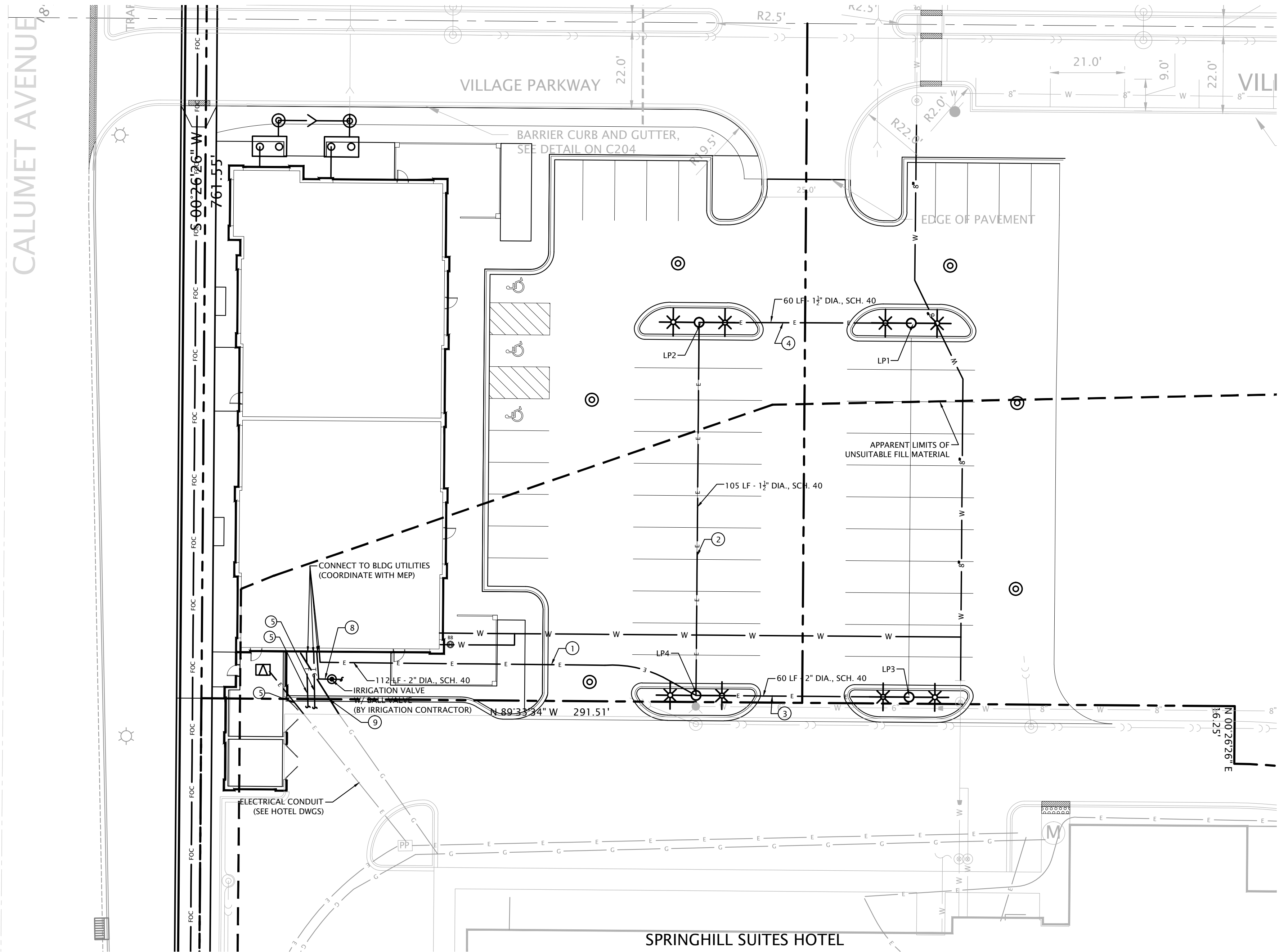
LIGHTING DETAILS



ORNAMENTAL LIGHT POLE FOUNDATION DETAIL

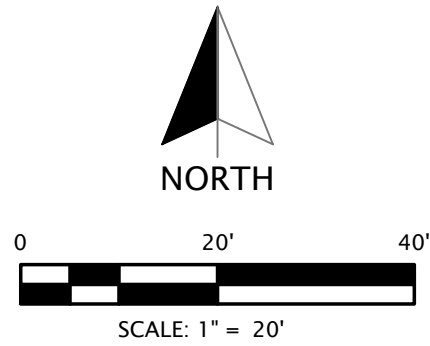
SCALE: NTS

- NOTE:
- IF SOIL IS STABLE, 3 FT. SONOTUBES MAY BE USED IN THE TOP OF THE FOUNDATION AND THE CLAY SIDES OF THE AUGURED HOLE WILL FORM THE REMAINDER. DEPTH OF FOUNDATION PER POLE MANUFACTURER'S SPECIFICATIONS.
 - ALL CONDUCTORS IN CONDUITS TO BE THWN OR XLP-XHHW COPPER.
 - ALL CONDUITS TRENCHED 36" BELOW GRADE MINIMUM.
 - ALL IRRIGATION CONTROLS AND VALVES BY IRRIGATION CONTRACTOR. ONE 120 VOLT, 20 AMPS CIRCUIT TO BE DEDICATED TO IRRIGATION CONTROLS.



LIGHTING EQUIPMENT SCHEDULE					
ITEM	QUANT.	BRAND	SIZE	VOLTS	DESCRIPTION
LP1-LP4	8	HOLOPHANE	115 WATT	208	MEMPHIS MSP-L115-4K-AS-S-B-5
LP1-LP4	4	HOLOPHANE	N/A	N/A	ORNAMENTAL DOUBLE ARM CVC-144-CA-BK
LP1-LP4	4	HOLOPHANE	N/A	N/A	WADSWORTH POLE WD-A-16-F5J-17-P12-ABC-BK
LP1-LP4	4	HOLOPHANE	N/A	120	POLE RECEPTACLE, R60A, 60 INCHES ABOVE BASE
					TYPE
					LED
					ALUMINUM
					ALUMINUM
					ALUMINUM

POWER, COMMUNICATIONS, AND LIGHTING CONDUIT AND CIRCUITING					
LABEL	SIZE	ORIGIN	DESTINATION	CONDUCTORS	CIRCUIT NOTES
1	2"	BLDG. PANEL	LP4	4C10, 1C8G	CIR. #1 LIGHTING (208V), CIR. #1R RECEPT.
2	1 1/2"	LP4	LP2	4C10, 1C8G	CIR. #1 LIGHTING, CIR. #1R RECEPT.
3	1 1/2"	LP4	LP3	4C10, 1C8G	CIR. #1 LIGHTING, CIR. #1R RECEPT.
4	1 1/2"	LP2	LP1	4C10, 1C8G	CIR. #1 LIGHTING, CIR. #1R RECEPT.
5	4"	PEDESTAL	BLDG D TRANSFRMR.	BY NIPSCO	PEDESTAL & BLDG D TRANSFRM. BY NIPSCO
6	2"	AT&T PEDESTAL	UTIL. RM.	BY AT&T	TELECOM
7	2"	COMCAST PEDESTAL	UTIL. RM.	BY COMCAST	ALTERNATE TELECOM
8	1"	UTIL. RM.	IRR. VALVES	BY IRRIGATION CONTRACTOR	TO PWR.ELECTRIC VALVES
9		HOTEL GAS LINE	BLDG D GAS	BY NIPSCO	



- LEGEND
- L12C4 LIGHT FIXTURE AND CIRCUIT NUMBER
- ① CONDUIT & CONDUCTORS
- PP PRIMARY PEDESTAL
- PT PRIMARY TRANSFORMER
- T AT&T OR COMCAST PEDESTAL
- TV AT GRADE AT&T OR COMCAST CONNECTION VAULT
- 10 LF - 1" DIA., SCH. 40 LENGTH & SIZE OF CONDUIT


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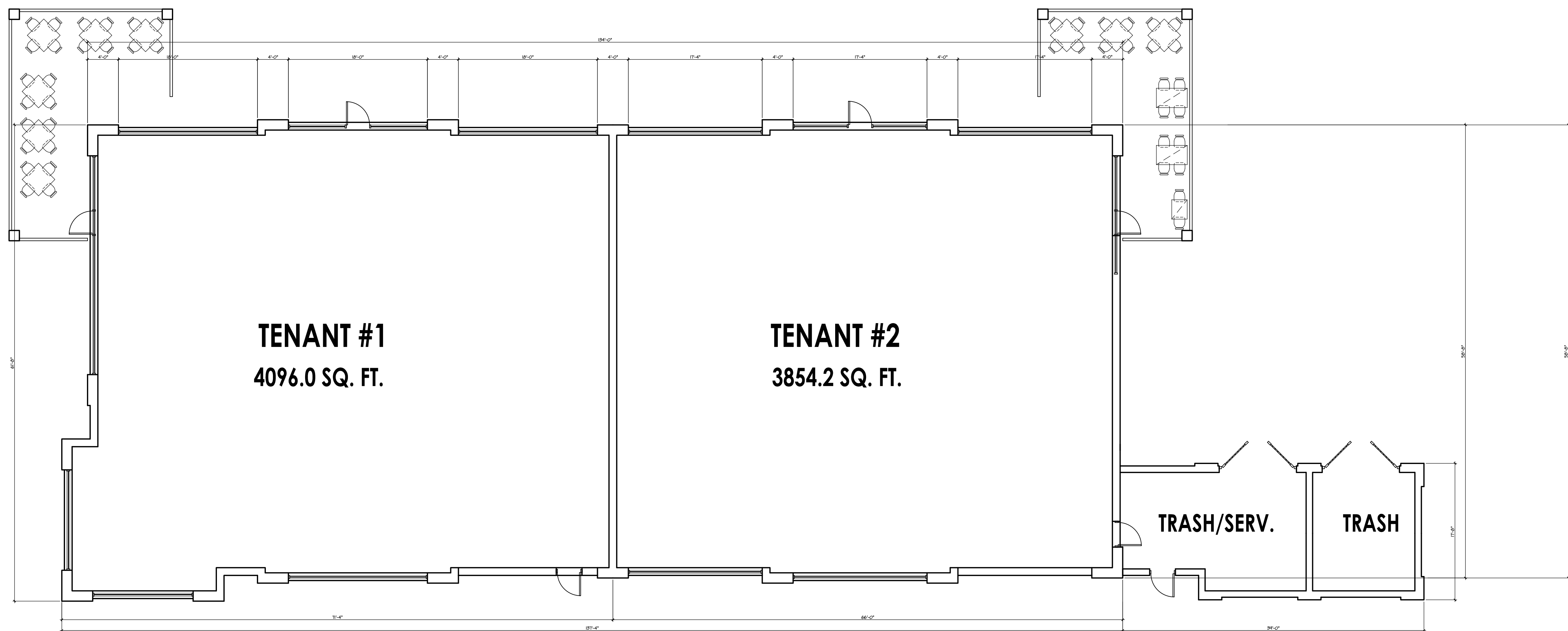
**Centennial Village - Lot 2
Munster, Indiana**
**Lighting, Power, &
Telecom Plan**

SCALE: 1"=20'	
DESIGN BY: RJP	
DRAWN BY: RJP	
DATE: 10-18-16	

E101

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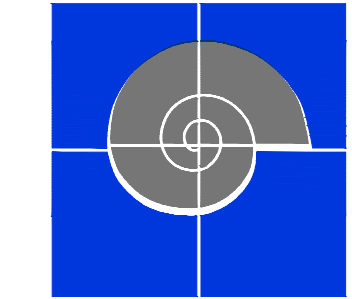
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FLOOR PLAN 7950.2 SQ. FT.
1/8" = 1'-0"



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Centennial Village
Munster, Indiana
DEVELOPMENT PLAN
AMENDMENT / BUILDING "D"

DRAWN DESCRIPTION
PLAN COMMISSION SUBMITTAL
DATE 10-19-2016
WJM

2016-0095
PROJECT NUMBER

FILE NUMBER
12-20-2016
DATE
TMH
DRAWN BY

FINAL REVIEW

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SHEET NAME

A-1.0

SHEET

OF



WEST ELEVATION CALUMET AVENUE

1/8" = 1'-0"



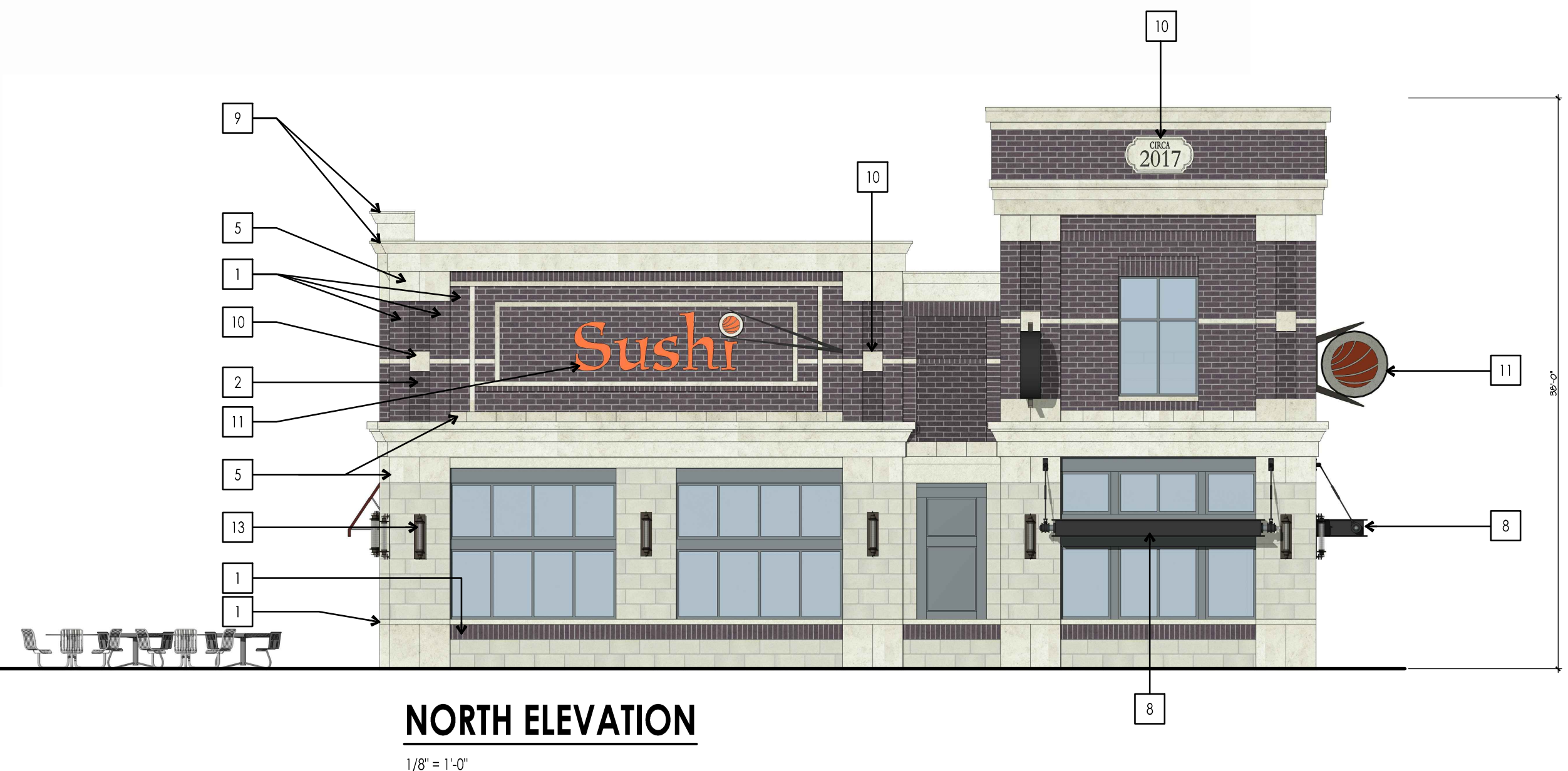
EAST ELEVATION

1/8" = 1'-0"



SOUTH ELEVATION

1/8" = 1'-0"



NORTH ELEVATION

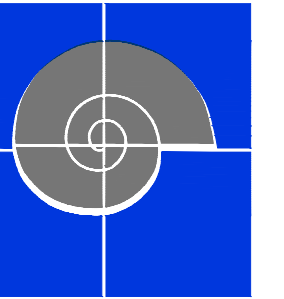
1/8" = 1'-0"

ELEVATION TAG KEY

- 1 BRICK 1
- 2 BRICK 2
- 3 BRICK 3
- 4 BRICK 4
- 5 STONE 1
- 6 STONE 2
- 7 CANVAS AWNING
- 8 STEEL AWNING
- 9 EIFS CORNICE
- 10 DECORATIVE PRECAST STONE ORNAMENT
- 11 TENANT SIGNAGE
- 12 THERMALLY BROKEN ALUMINUM STORE FRONT
- 13 DECORATIVE LIGHT
- 14 DECORATIVE APPLIED BREAK METAL PANELS
- 15 DECORATIVE RECESSED BREAK METAL PANELS
- 16 PRECAST STONE SILL
- 17 PRECAST STONE CAP
- 18 PRECAST STONE BAND
- 19 INSULATED METAL SERVICE DOOR
- 20 VINYL SLAT GATE COLOR TO MATCH BUILDING STOREFRONT



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Centennial Village

Munster, Indiana

DEVELOPMENT PLAN

AMENDMENT / BUILDING "D"

DRAWN DESCRIPTION

PLAN COMMISSION SUBMITTAL

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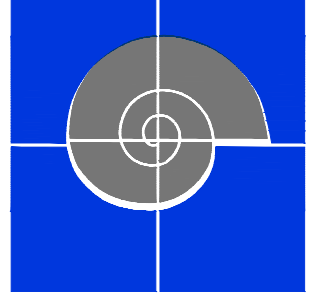
SHEET

OF

1



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Centennial Village

Munster, Indiana
DEVELOPMENT PLAN
AMENDMENT / BUILDING "D"

DRAWN DESCRIPTION
PLAN COMMISSION SUBMITTAL
DATE 10-19-2016
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2016-0095
PROJECT NUMBER

FILE NUMBER
12-20-2016

DATE
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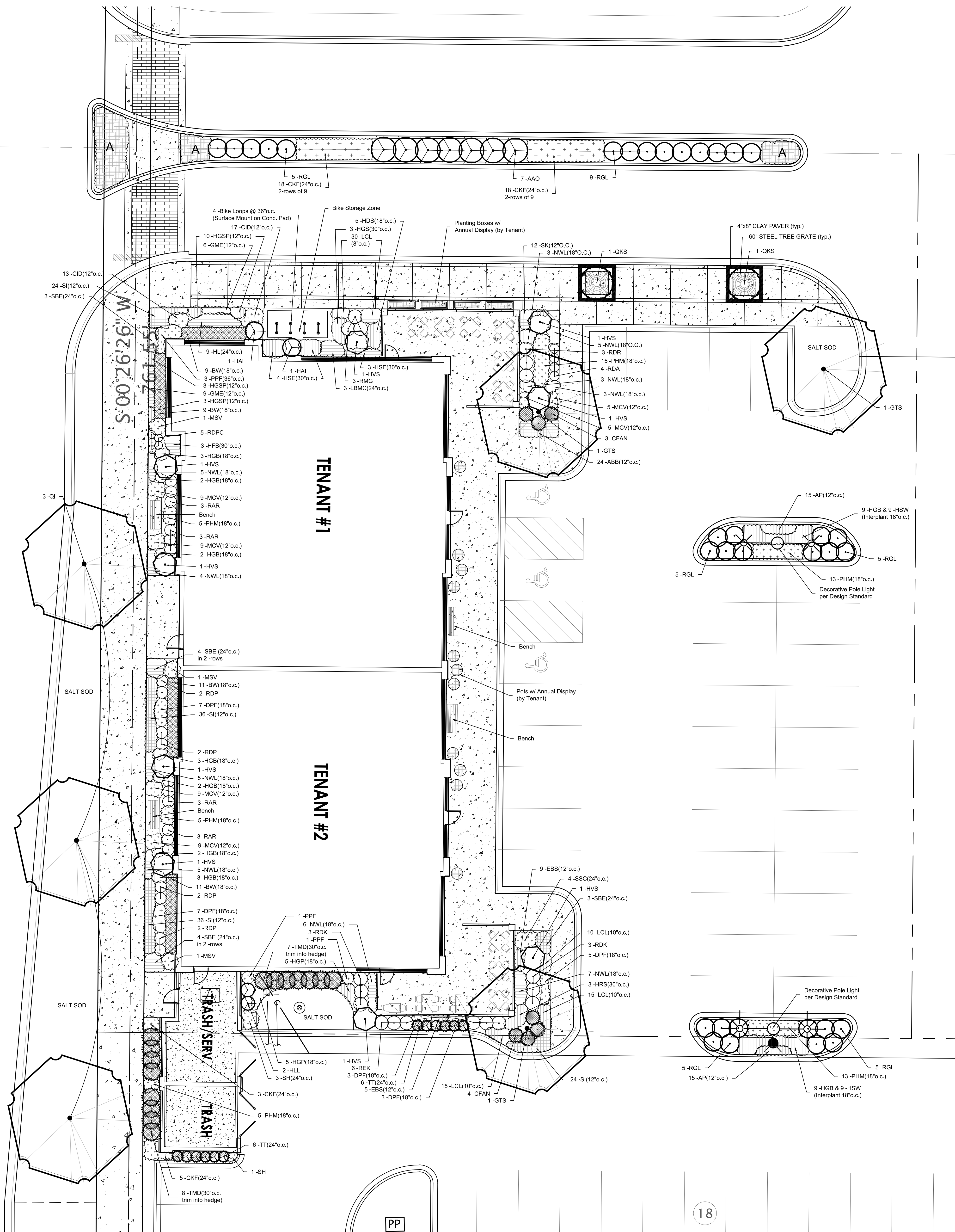
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SHEET NAME

A-4.1

SHEET

OF



PLANT LIST				
KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE/TYPE
DECIDUOUS SHADE TREES				
GTS	3	Gleditsia t'l.'Skyline'	Skyline Honeylocust	2.5" BB
QI	3	Quercus imbricaria	Shingle Oak	2.5" BB
QKS	2	Quercus r.b.'Kindred Spirit'	Kindred Spirit English Oak	2.5" BB
DECIDUOUS ORNAMENTAL TREES				
AAO	7	Amelanchier a.'Obelisk'	Standing Ovation Serviceberry	#5
DECIDUOUS SHRUBS & SHRUB ROSES				
HAI	2	Hydrangea a.'Abetwo'	Incrediball Hydrangea	#5
HLL	2	Hydrangea p.'Jane'	Little Lime Hydrangea	#5
HVS	9	Hydrangea p.'Vanilla Strawberry'	Vanilla Strawberry Hydrangea	#5
RGL	24	Rhus a.'Gro-Low'	Gro-Low Sumac	#5
RDA	4	Rosa 'Meimirote'	Apricot Drift Rose	#3
RDP	8	Rosa 'Meiggit'	Peach Drift Rose	#3
RDP	8	Rosa 'Novarospop'	Popcorn Drift Rose	#3
RAR	15	Rosa 'BAlrage'	Easy Elegance All the Rage Rose	#3
REK	6	Rosa 'BAlmir'	Easy Elegance Kashmir Rose	#3
RMS	3	Rosa 'BAlgin'	Easy Elegance MyGirl	#3
RDK	6	Rosa 'Radtko'	Double Knockout Shrub Rose	#3
EVERGREEN SHRUBS				
CFAN	7	Chamaecyparis p.'Filifera Aurea Nana'	Japanese False Cypress	#3
TMD	15	Taxus m.'Densiformis'	Dense Yew	36" BB
TT	12	Thuja o.'Bail John'	Technito Arborvitae	4" BB
BROADLEAF EVERGREENS				
BW	40	Buxus 'Wilson'	Northern Charm Boxwood	#3
ORNAMENTAL GRASS				
CKF	44	Calamagrostis a.'Karl Foerster'	Feather Reed Grass	#1
CID	30	Carex m.'Ice Dance'	Ice Dance Sedge	#1
DPF	25	Deschampsia c.'Pixie Fountain'	Pixie Fountain Tufted Hair Grass	#1
MSV	3	Miscanthus s.'Variegatus'	Variegated Silver Grass	#1
MCV	46	Molinia c.'Variegata'	Variegated Moor Grass	#1
PHM	56	Panicum v.'Heavy Metal'	Heavy Metal Switch Grass	#1
PPF	5	Panicum v.'Prairie Fire'	Prairie Fire Switch Grass	#1
SSC	3	Schizachyrium s.'Carousel'	Carousel Little Bluestem	#1
SH	4	Sporobolus heterolepis	Prairie Dropseed	#1
PERENNIALS				
EBS	14	Echinacea x.'Sunrise'	Big Sky Sunrise Coneflower	#1
GME	15	Geranium m.'Espresso'	Espresso Geranium	#1
HGB	35	Hemerocallis 'Going Bananas'	Going Bananas Daylily	#1
HSW	18	Hemerocallis 'Summer Wine'	Summer Wine Daylily	#1
HDS	5	Heuchera a.'Dale's Strain'	Dales Strein Coralbells	#1
HGSP	16	Heuchera a.'Green Spice'	Green Spice Coralbells	#1
HGP	10	Heuchera 'Georgia Peach'	Georgia Peach Coralbells	#1
HFB	3	Hosta 'Fragrant Bouquet'	Fragrant Bouquet Hosta	#1
HGS	3	Hosta 'Gold Standard'	Gold Standard Hosta	#1
HL	9	Hosta 'Liberty'	Liberty Hosta	#1
HRS	3	Hosta 'Regal Splendor'	Regal Splendor Hosta	#1
HSE	7	Hosta s.'Elegans'	Elegans Siebold Hosta	#1
LBMC	3	Ligularia d.'Britt-Marie Crawford'	Black-leaved Ligularia	#1
NWL	46	Nepeta f.'Walker's Low'	Walker's Low Catmint	#1
SBE	14	Stachys b.'Big Ears'	Big Ears Lamb's Ear	#1
GROUNDCOVERS & VINES				
ABB	1	Ajuga r.'Bronze Beauty'	Carpet Bugleweed (24 plants)	24 flat
AP	3	Ameria p.'Joystick Lilac Shades'	Sea Thrift (30 plants)	10 flats
LCL	7	Liriope spicata	Creeping Lilyturf (70 plants)	10 flats
SI	5	Sedum 'Immergrunchen'	Evergreen Sedum (120 plants)	24 flats
SK	1	Sedum kamtschaticum	Russian Sedum (12 plants)	12 flat

MATERIAL & LABOR LIST:		
QTY	ITEM	DESCRIPTION
268 SY	Sod	Salt Sod
27 CY	Mulch	Shredded Hardwood Bark
14 CY	Mulch	Compost (Yard Waste or Mushroom)
4	Bench	6' Metal Bench - 58 Series
4	Bike Rack	By: DuMor Inc. Color: Black Loop Bike Rack - 290 Series
2	Tree Grate	By: DuMor Inc. Color: Black 60" x 60" Steel Tree Grate
50 SF	Gravel Mulch	Black Lava Rock

GENERAL NOTES:

Plant material shall be nursery grown and be either balled and bur-lapped or container grown. Sizes and spreads on plant list represent minimum requirements.

The requirements for measurement, branching and ball size shall conform to the latest addition of ANSI Z60.1, AMERICAN STANDARD OF NURSERY STOCK by the American Nursery & Landscape Association.

Any materials with damaged or crooked/disfigured leaders, bark abrasion, sunscald, insect damage, etc. are not acceptable and will be rejected. Trees with multiple leaders will be rejected unless called for in the plant list as multi-stem or clump (cl.).

If any mistakes, omissions, or discrepancies are found to exist with the work product, the Landscape Architect shall be responsible so that they have the opportunity to take any steps necessary to resolve the issue. Failure to promptly notify the Landscape Architect and the Owner of such conditions shall absolve them from any responsibility for the consequences of such failure.

Quantity lists are supplied as a convenience. However, Bidders and the Installing Contractor should verify all quantities. The drawings shall take precedence over the lists. Any discrepancies shall be reported to the Landscape Architect.

Actions taken without the knowledge and consent of the Owner and the Landscape Architect or in contradiction to the Owner and the Landscape Architect's work product or recommendations, shall become the responsibility not of the Owner and the Landscape Architect, but for the parties responsible for the taking of such action.

Civil Engineering or Architectural base information has been provided by others. The location of various site improvements on this set of drawings is only illustrative and should not be relied upon for construction purposes.

Refer to Civil Engineering documents for detailed information regarding size, location, depth and type of utilities, as well as locations of other site improvements, other than landscape improvements.

Plant symbols illustrated on this plan are a graphic representation of proposed plant material types and are intended to provide for visual clarity. However, the symbols do not necessarily represent actual plant spread at the time of installation.

Contractor shall verify location of all underground utilities prior to digging.

All perennial, ornamental grass, groundcover and annual beds shall be top dressed with a minimum of three inches (3") of mushroom compost. The top dressing shall be worked into the soil to a minimum depth of nine inches (9") by the use of a cultivating mechanism. Upon completion perennials & ornamental grasses shall be mulched with an additional two inch (2") layer of shredded wood mulch. Annuals & groundcovers shall be covered with an additional two inch (2") layer of mushroom compost.

All other planting beds and tree saucers shall be mulched with a minimum of three inches (3") of shredded wood mulch.

Planting beds adjacent to building shall be mulched in their entirety to the building foundation. Plant materials shall not be installed under building overhangs and other such areas which do not receive natural rainfall.

All bed lines and tree saucers shall require a hand spaded edge between lawn and mulched areas.

Grading shall provide slopes which are smooth and continuous. Positive drainage shall be provided in all areas.

Sod shall be mineral base only.

Seed mixes shall be applied mechanically so that the seed is incorporated into the top one-half inch (1/2") of the seed bed. The seed shall then be covered with the specified blanket (installed per manufacturer's specs) or Hydro-mulch.

All plant material shall be guaranteed for one (1) year from the date of acceptance.

LEGEND	
	DECIDUOUS SHADE TREE - 2.5"
	COLUMNAR DECIDUOUS TREE - 2.5"
	DWARF EVERGREEN SHRUB
	DWARF SHRUB
	DWARF FLOWERING SHRUB
	DWARF SHRUB ROSE
	MEDIUM FLOWERING SHRUB - #5
	DWARF UPRIGHT EVERGREEN - 4/5
	EVERGREEN HEDGE - 36" @ 30"o.c.
	BROADLEAF EVERGREEN HEDGE - #3 @ 18"o.c.
	PERENNIALS
	GROUNDCOVERS
	ORNAMENTAL GRASSES
	ANNUAL FLOWERS

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REVISIONS

1 - Final Plan	12/26/16

CENTENNIAL VILLAGE

BUILDING 'D'

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Planting beds adjacent to building shall be mulched in their entirety to the building foundation. Plant materials shall not be installed under building overhangs and other such areas which do not receive natural rainfall.

All bed lines and tree saucers shall require a hand spaded edge between lawn and mulched areas.

Grading shall provide slopes which are smooth and continuous. Positive drainage shall be provided in all areas.

Sod shall be mineral base only.

Seed mixes shall be applied mechanically so that the seed is incorporated into the top one-half inch (1/2") of the seed bed. The seed shall then be covered with the specified blanket (installed per manufacturer's specs) or Hydro-mulch.

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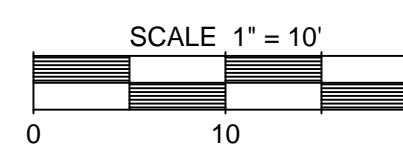
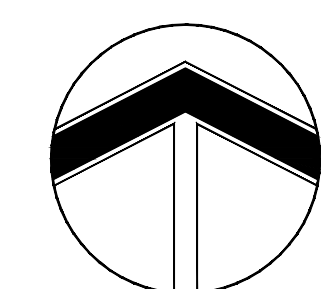
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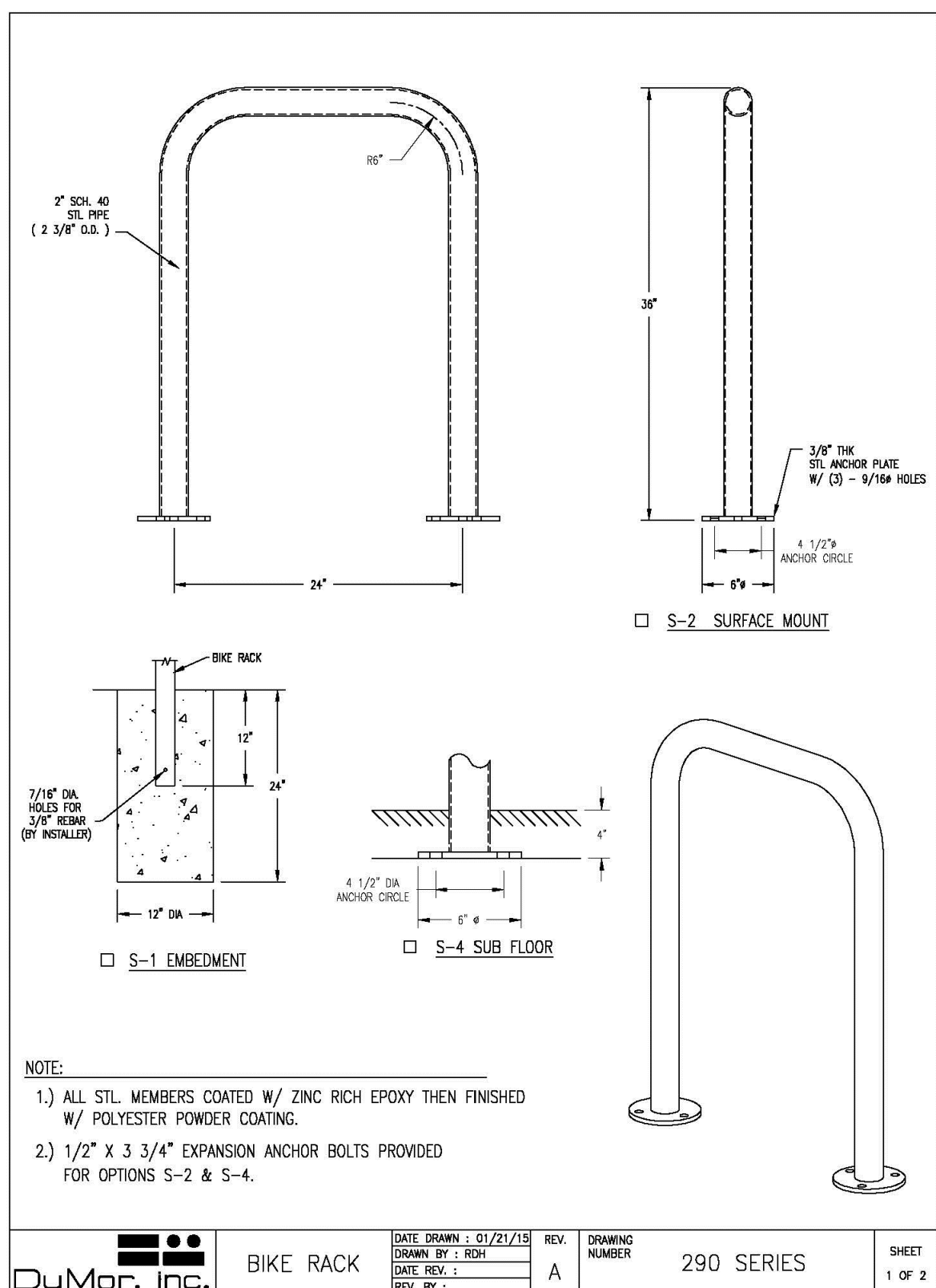
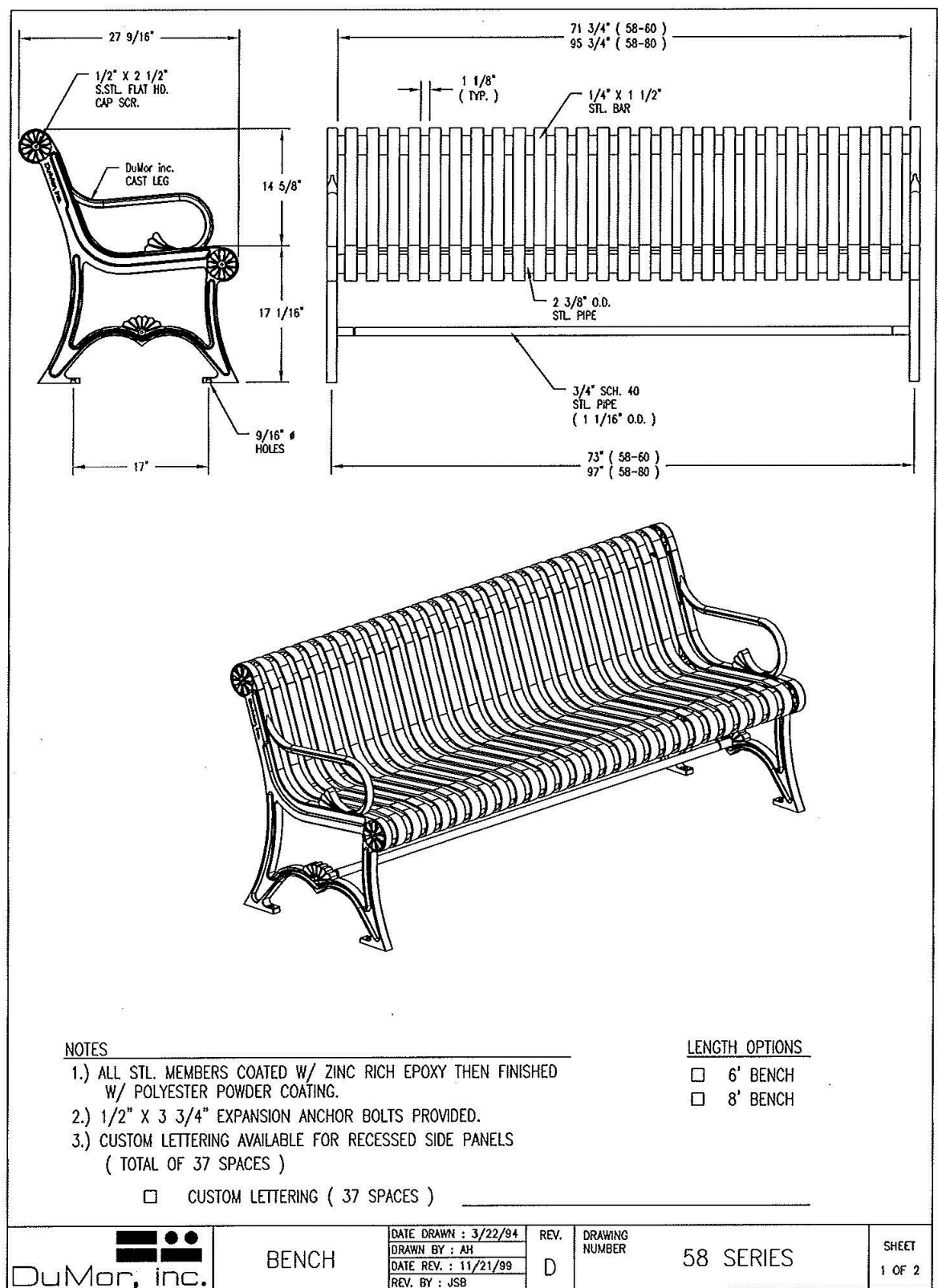
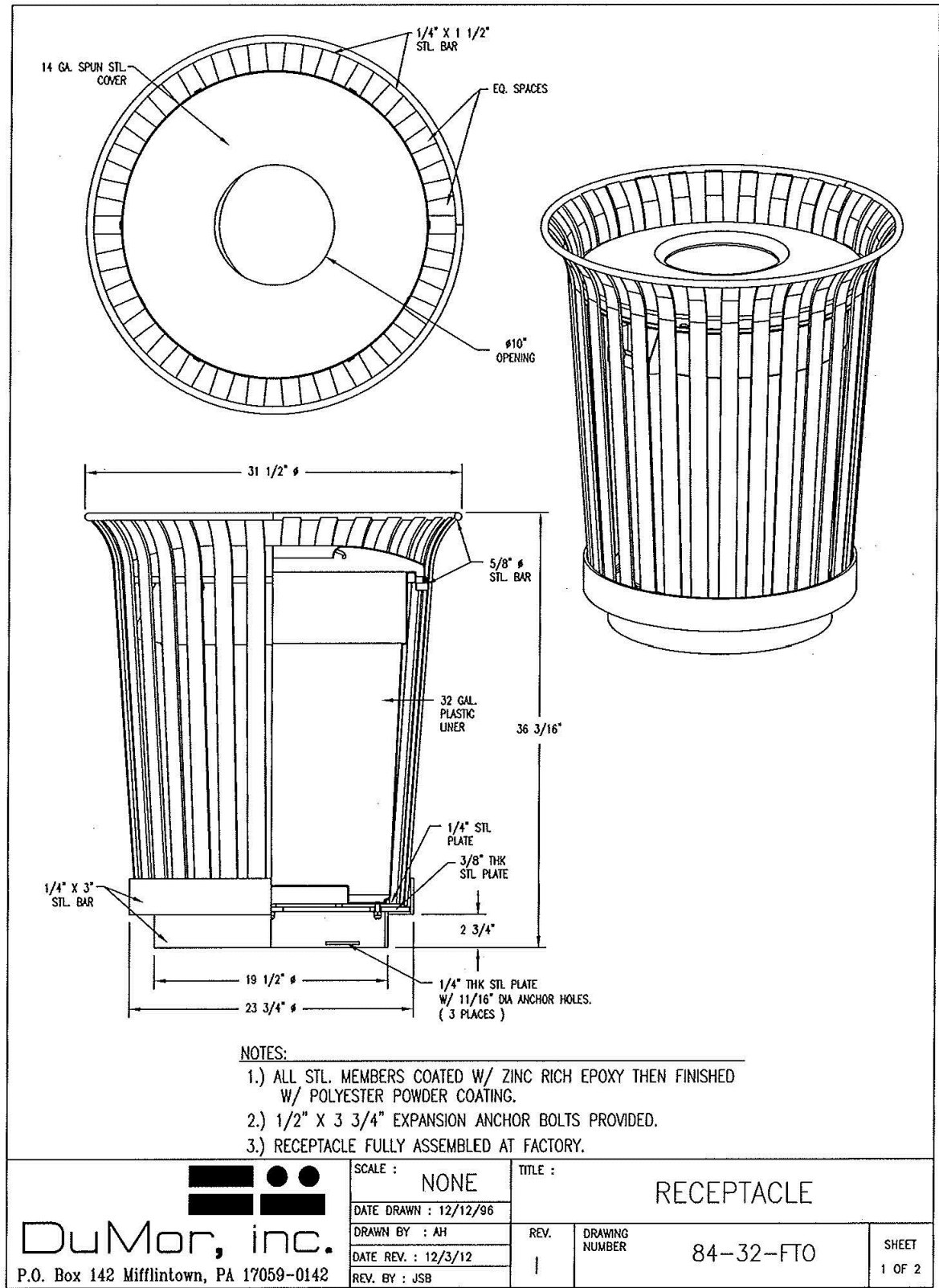
LANDSCAPE & AMENITIES PLAN

PROJECT NO.: JOB NO.:
L215 8919a

DATE: 12/23/16
SCALE: 1"=10'
PLANNER: JMR
DRAWN BY: RM
CHECKED: _____

SHEET
L-1





TREE GRATES

Thanks to their Plastol coating, Wabash Valley tree grates are virtually maintenance-free, never need painting and will not rust-stain. Unlike cast iron tree grates, ours are substantially lighter, saving on installation- and freight costs.

Features:
 Complies with the Americans with Disabilities Act of 1990.

Backed by 5-year limited warranty - guaranteed not to crack, peel, warp or rot.

Unaffected by common acids, alkalis, salts, acid rain, sewage or sea water.

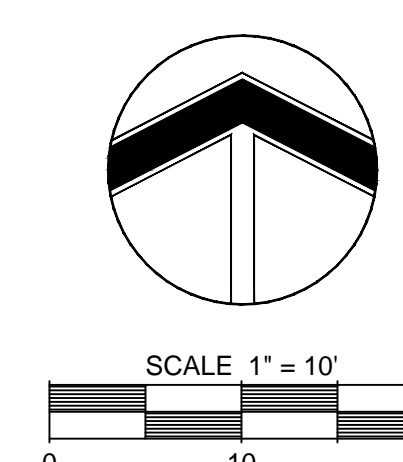
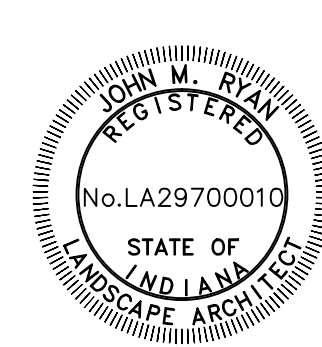
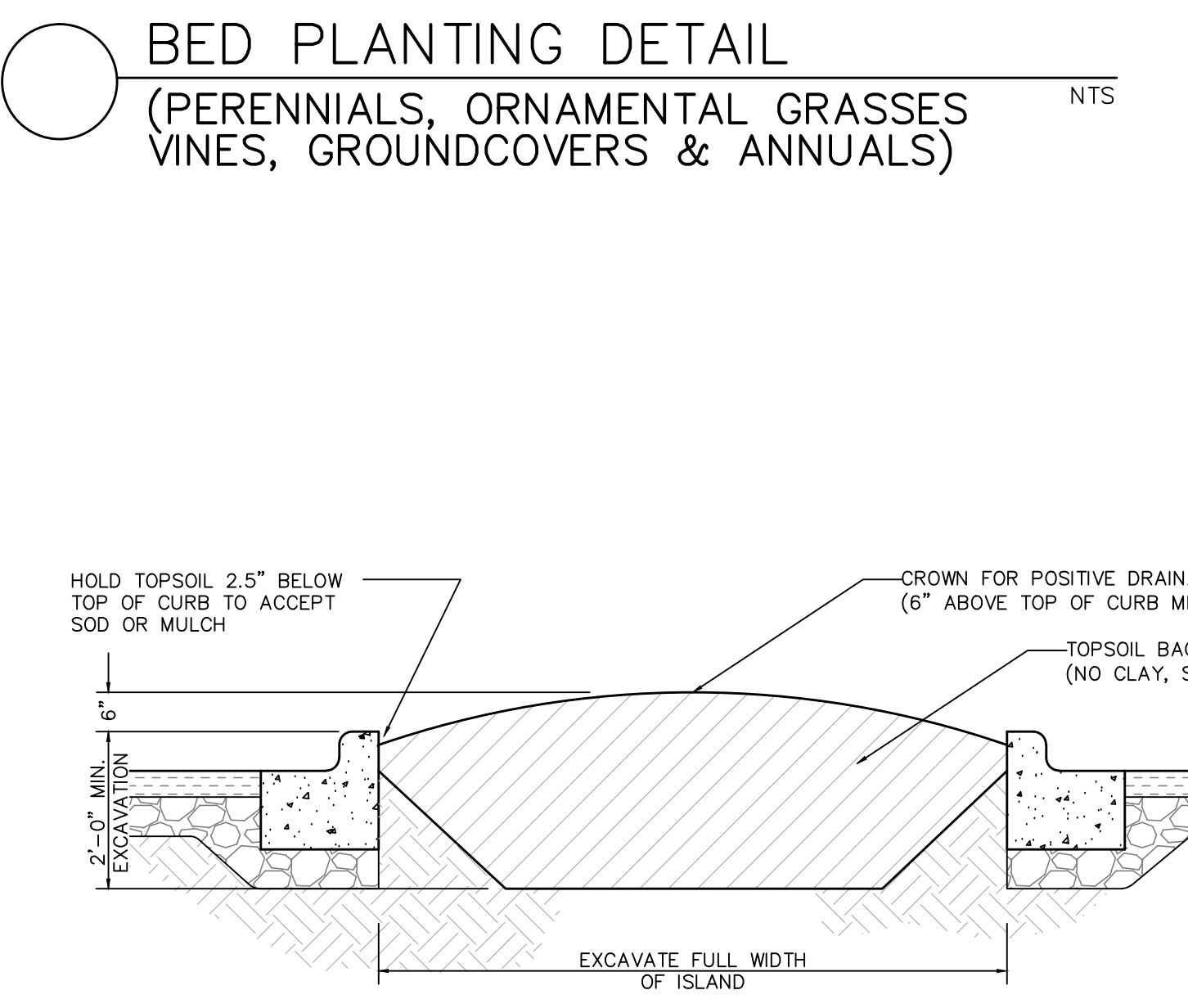
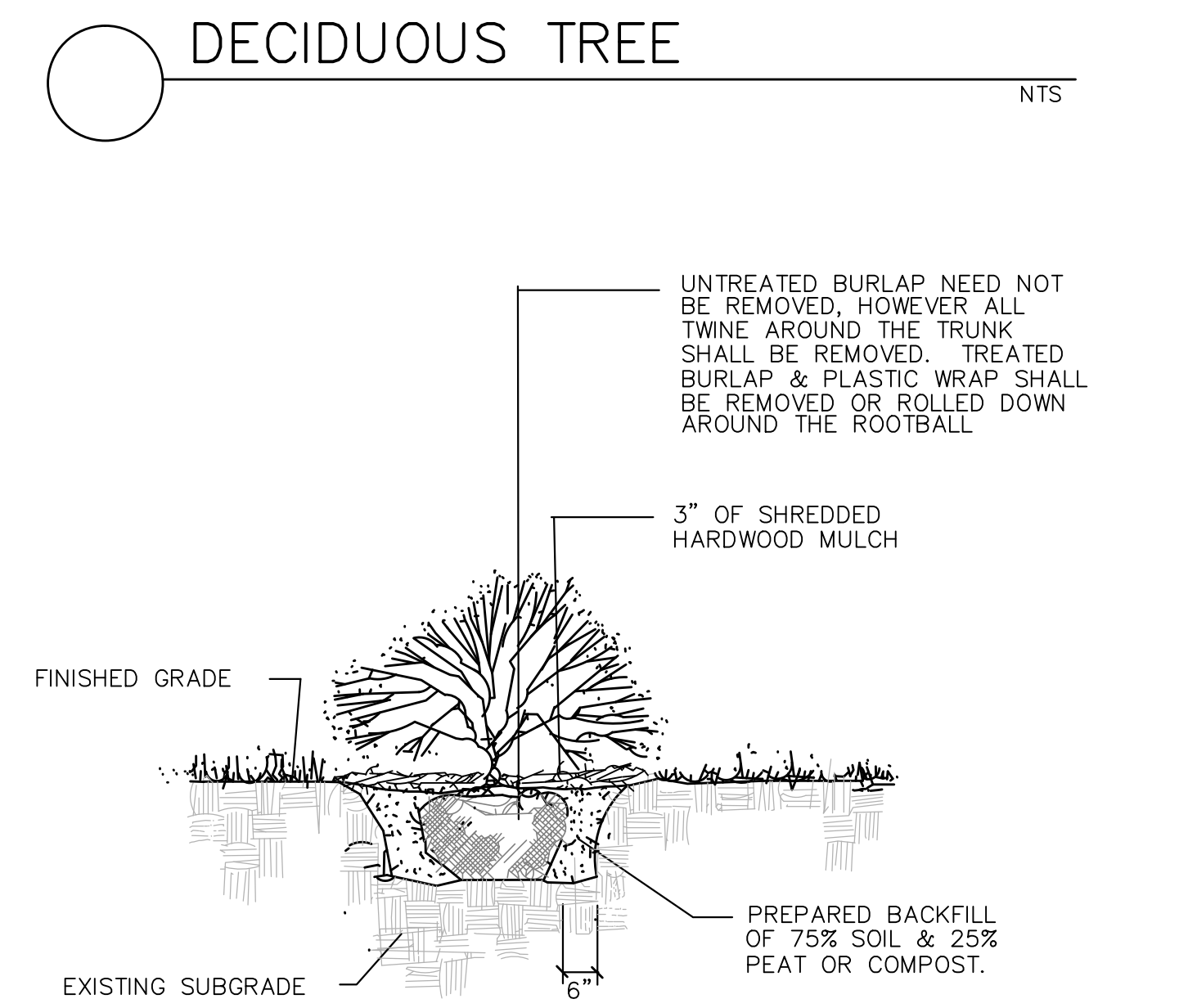
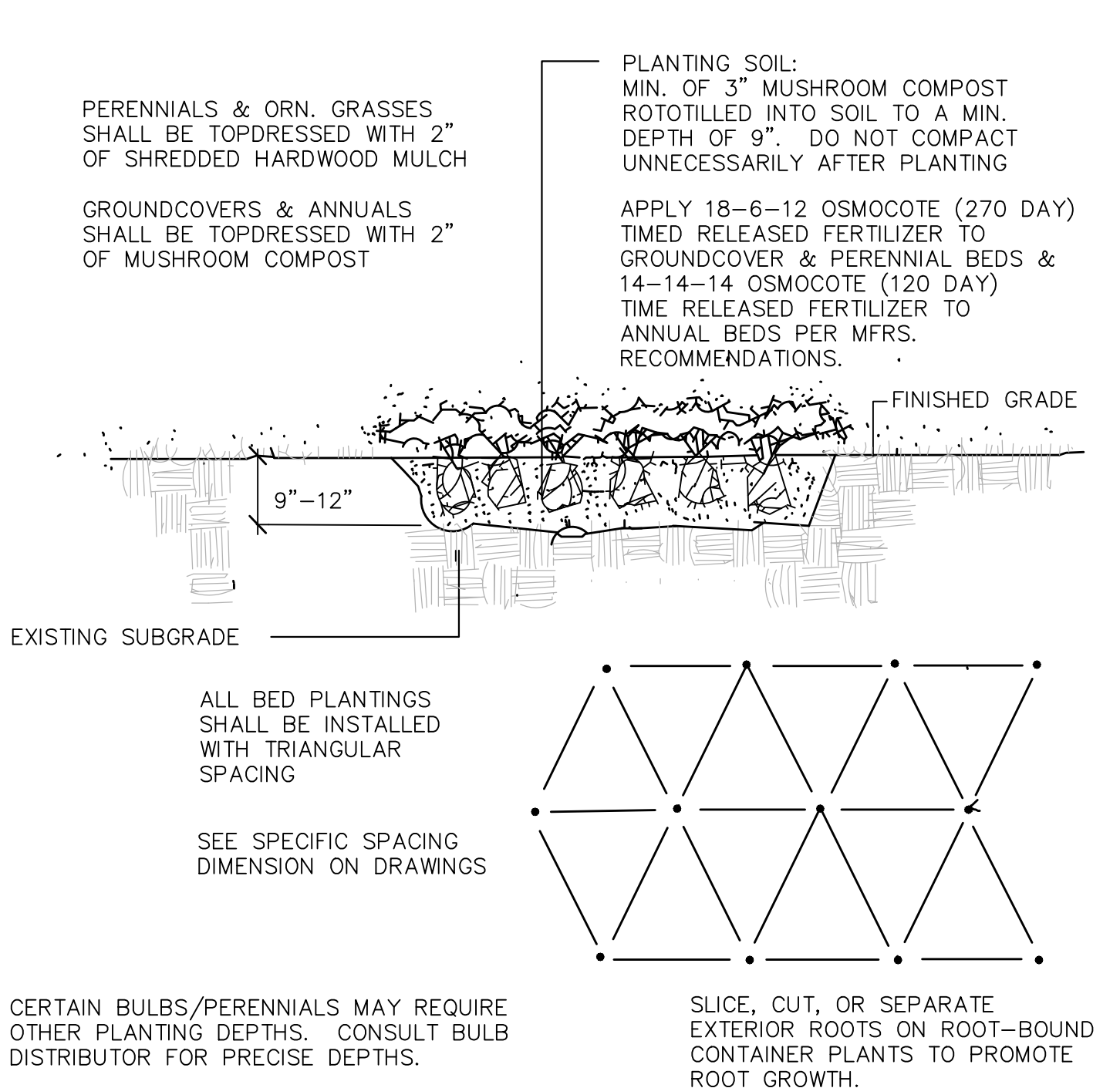
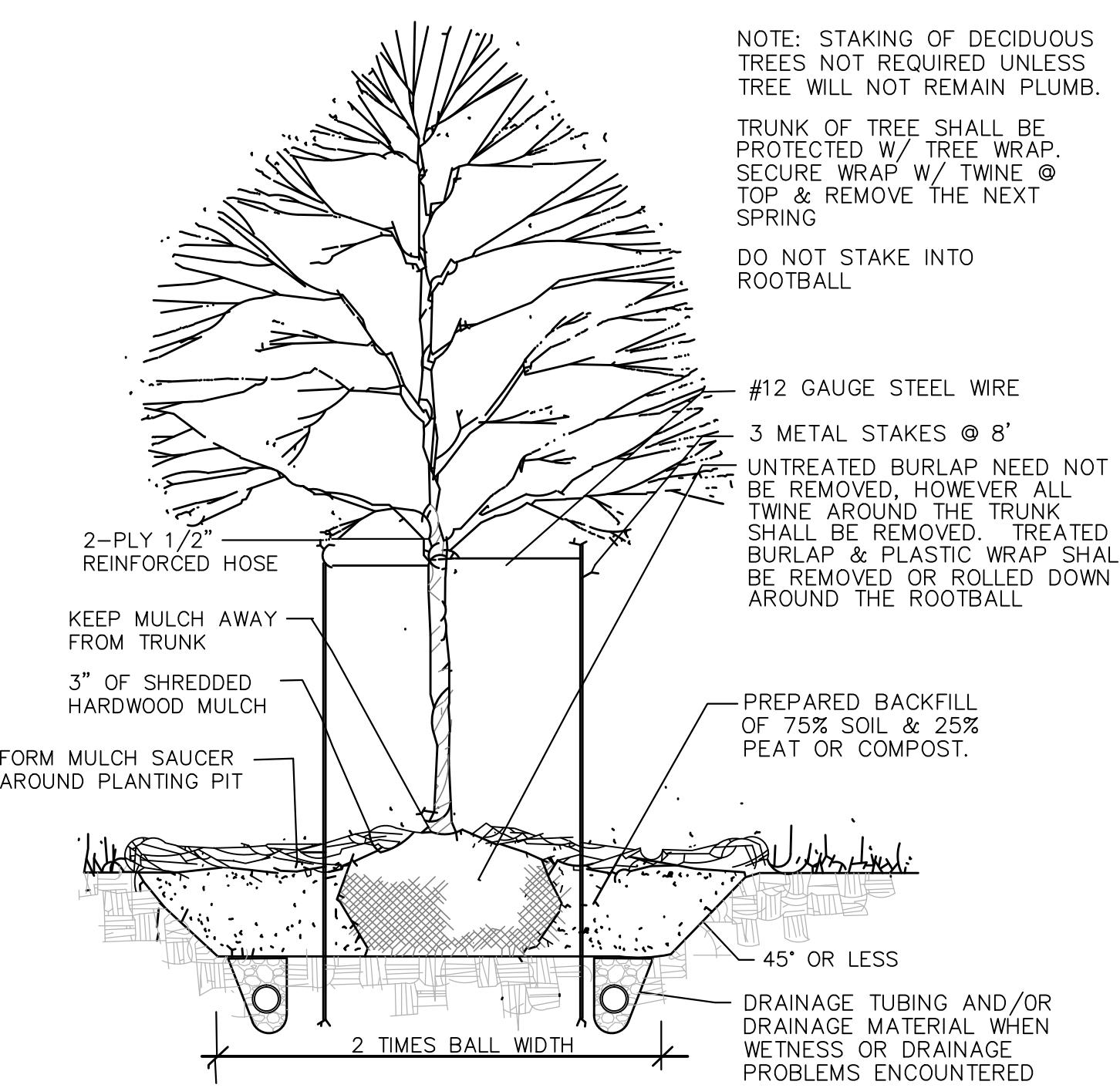
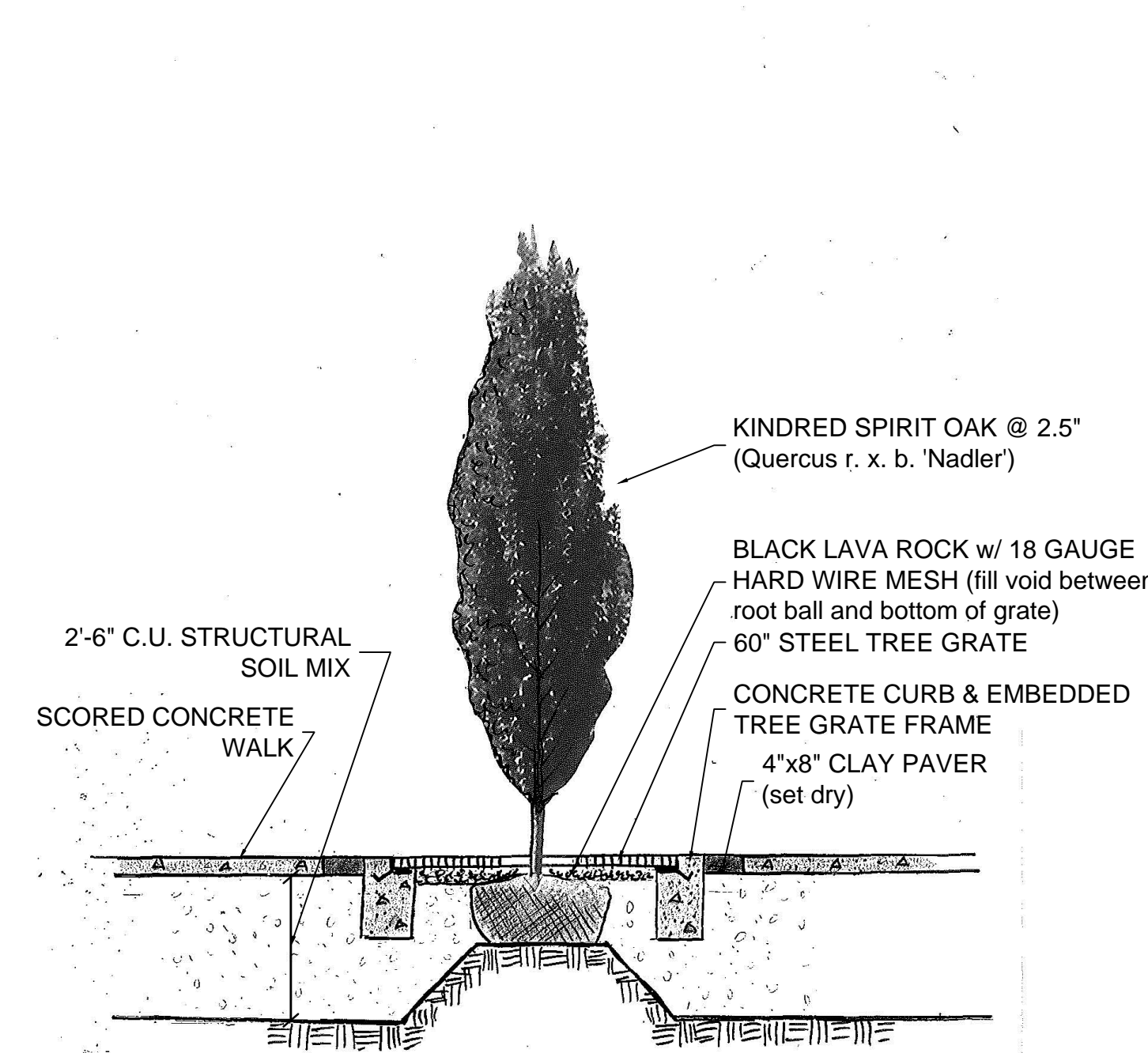
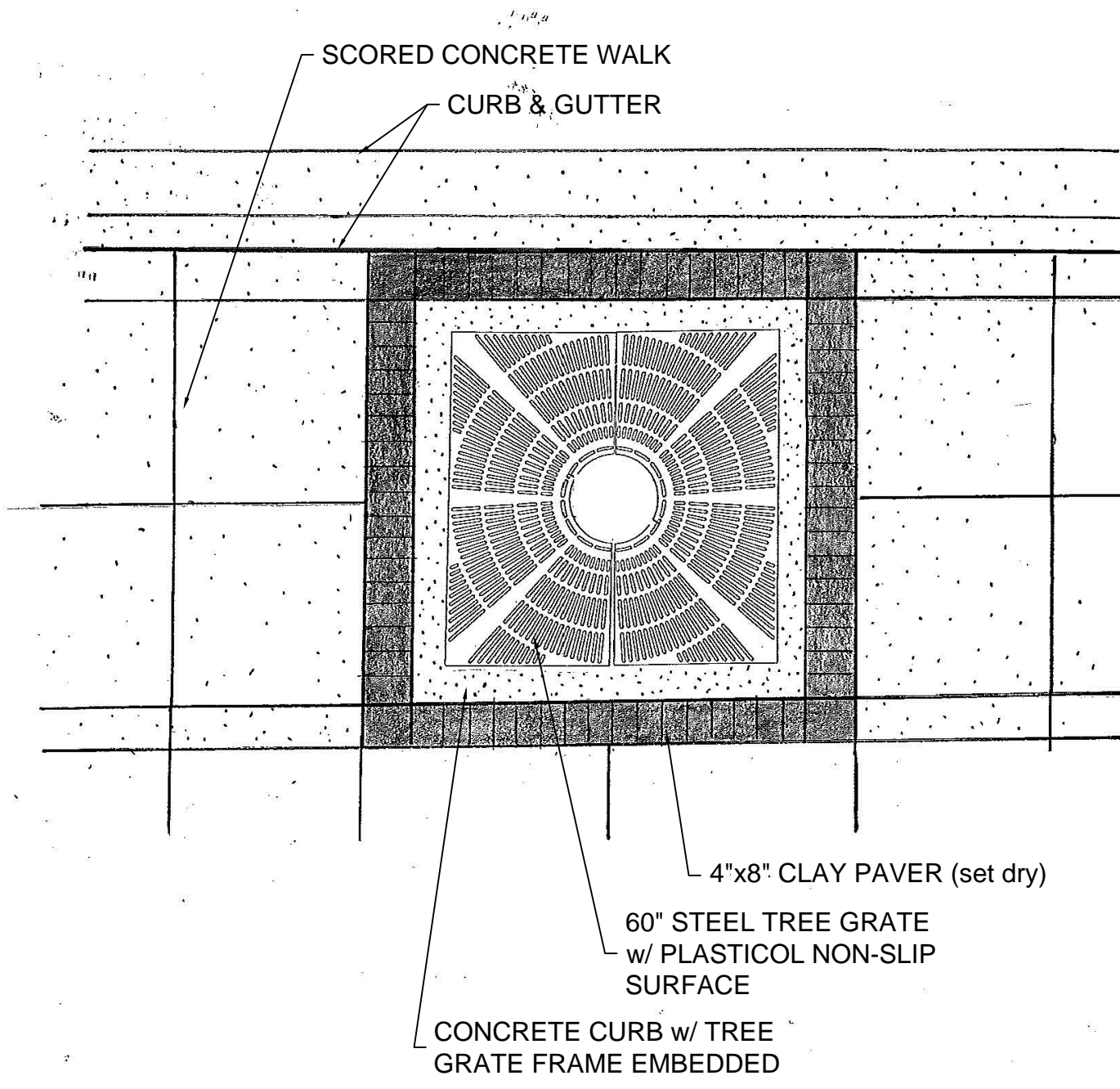
Black matte Plastol only, specially formulated for a slip-resistant surface.



REPRESENTATIVE POTS



REPRESENTATIVE PLANTER BOXES



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REVISIONS

1 - Final Plan	12/26/16

CENTENNIAL VILLAGE

BUILDING 'D'

IRG Ives/Ryan Group, Inc.
 324 EISENHOWER LANE N.
 LOMBARD, IL 60140
 PHONE: 630.717.0726

Landscape Architecture
Park & Recreation Design
Site & Community Planning



www.ivesryangroup.com

LANDSCAPE & AMENITIES PLAN

PROJECT NO.: JOB NO.:
L215 8919a

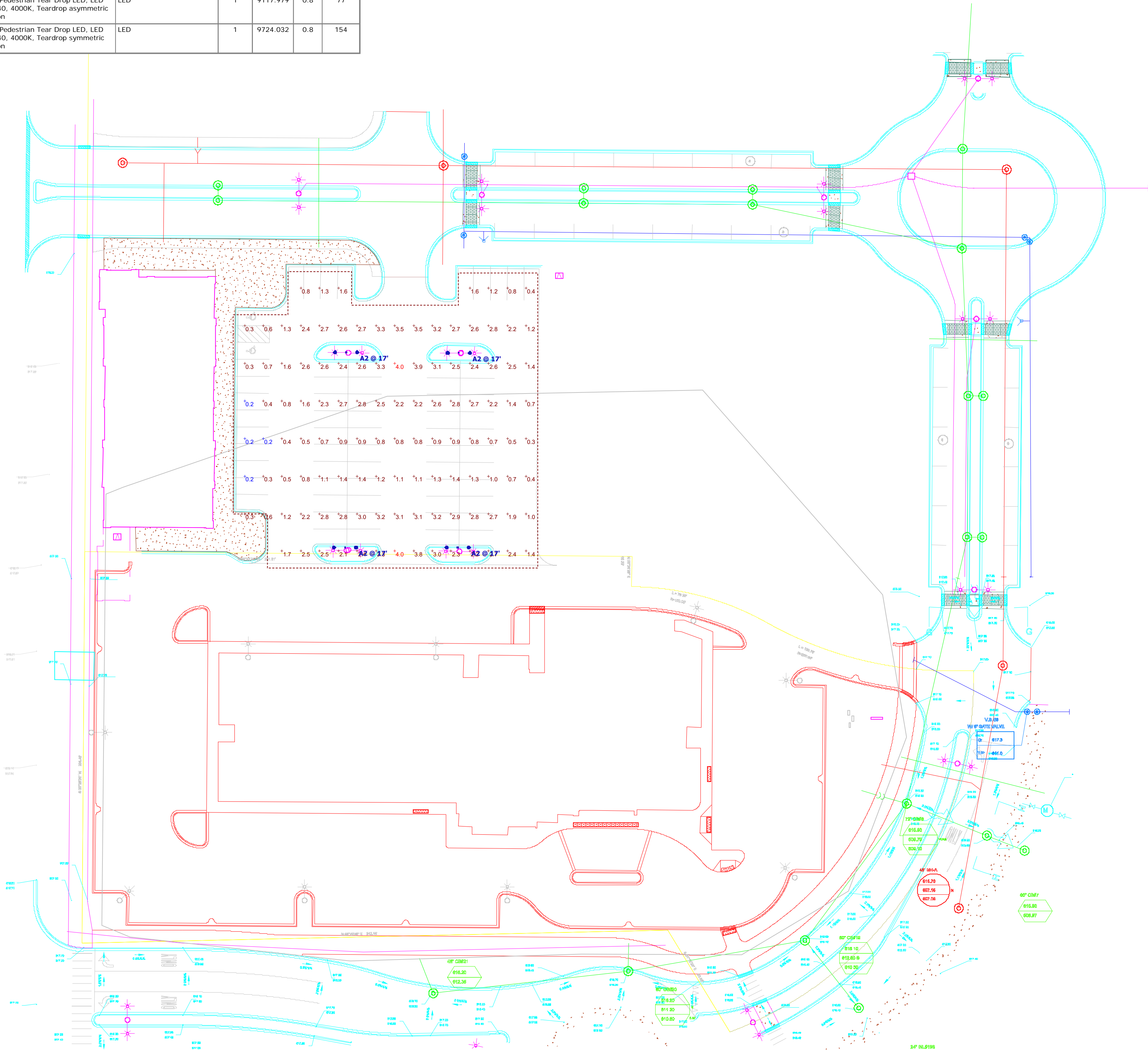
DATE: 12/23/16
 SCALE: NOTED
 PLANNER: JMR
 DRAWN BY: RM
 CHECKED: _____

SHEET
L-2

Schedule									
Symbol	Label	QTY	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage
	A	0	MSPL2 P40 40K XX 4	Memphis Pedestrian Tear Drop LED, LED Package 40, 4000K, Teardrop asymmetric distribution	LED	1	9117.979	0.8	77
	A2	4	MSPL2 P40 40K XX 5	Memphis Pedestrian Tear Drop LED, LED Package 40, 4000K, Teardrop symmetric distribution	LED	1	9724.032	0.8	154

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	1.8 fc	4.0 fc	0.2 fc	20.0:1	9.0:1

Luminaire Locations							
		Location					
No.	Label	X	Y	Z	MH	Orientation	Tilt
4	A2	5237.10	10571.00	17.00	17.00	90.00	0.00
5	A2	5297.10	10571.00	17.00	17.00	90.00	0.00
6	A2	5237.70	10674.90	17.00	17.00	90.00	0.00
7	A2	5297.70	10674.60	17.00	17.00	90.00	0.00



Plan View
Scale - 1" = 35ft

Centennial Village
Parking Lot
(4 twin assemblies)

Designer
Brown
Date
10/28/2016
Scale
Not to Scale
Drawing No.

Summary